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WEED ABSTRACTS

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NOTES FOR READERS OF WEED ABSTRACTS

Weed Abstracts endeavours to provide a comprehensive coverage of the world's literature on weeds, weed control and closely allied subjects. To this end over 370 journals and nearly 100 annual reports are regularly searched. Other journals, reports, bulletins, etc. are abstracted as they are seen. Additional coverage is obtained through agreements with other abstracting organisations.

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As far as possible journal abbreviations given in the World List of Scientific Periodicals are used. Holding libraries in Oxford and elsewhere are also taken from the World List, e.g. O.BO. = Botany Department, Oxford. Numbers at the end of abstracts, e.g. 75(492) are for internal use only.

When a paper is by more than one author, only the address of the first author is given.

Where an abstract is taken from an abstracting journal the acknowledgement follows the abstract, e.g. Herb.Abstr., 2,163. Where it is only quoted in part the acknowledgement is preceded by the word "from", e.g. From Biol.Abstr., 2,294.

The Information Section is always pleased to receive comments and suggestions for the improvement of Weed Abstracts.

* An asterisk before the author's name indicates that only the title of the paper has been seen.

Continued from the inside back cover.

ac	- acre(s)	in.	- inch(es)	p.s.i.	- pounds per square in.
a.e.	- acid equivalent	kg	- kilogram(s)	v/v	- volume/volume
a.i.	- active ingredient	l	- litre(s)	w/v	- weight/volume
cm	- centimetre(s)	lb	- pound(s)	w/w	- weight/weight
d.b.h.	- diameter at breast height	m	- metre(s)	>	- greater than
		ml	- millilitre(s)	<	- less than
ft	- foot (feet)	oz	- ounce(s)	#	- pounds per acre
g	- gram(s)	post-em.	- post-emergence	±	- with or without
gal	- gallon(s)	pre-em.	- pre-emergence		
ha	- hectare(s)	p.p.m.	- parts per million		

Language abbreviations: an initial capital denotes the language of the article, a small letter that of the summary: - Dan. - Danish, Du. - Dutch, E. - English, F. - French, G. - German, It. - Italian, Jap. - Japanese, Nor. - Norwegian, Russ. - Russian, Span. - Spanish, Sw. - Swedish.

See also 516,546,561,570N,577,597.

482. ORSENIGO, J.R. (Everglades Sta., Belle Glade,Florida,U.S.A.) Primary evaluation of post-emergence applied herbicides in vegetable and field crops, Spring 1958. Mimeo.Rep.Fla Everglades Exp. Sta., 1958, 59-6, pp.14, tabs.9.

Describes replicated experiments on 22 vegetable and 8 field crops to determine the effects of 21 herbicidal treatments applied 3 weeks after planting in organic soils. Principal weeds were stickerweed (Amaranthus spinosa) 1-2 in. tall and second pair of true leaves expanded, and crabgrass (Digitaria sp.) 1-2 in. tall and third leaf expanded. The table shows the stand and tolerance of the crops to herbicides 10 days after application as % of untreated controls, and the control of weeds as % of hand weeded controls. [PBA = polychlorobenzoic acid; FW 450 = 2,3-dichloroisobutyrate].

	2,4-D 1 #	2,4-DB amine 2 #	2,4-DB* butyl 2 #	2,4-DB** PGBE 2 #	MCPB 2 #	PBA 1.5 #	Amitrol 1.5 #	Dinoseb 3 #	Monuron 1.6 #	FW 450 10 #
F.corn	87	97	84	97	84	78	56	62	50	34
Hegari	75	91	62	72	69	72	47	19	56	3
Oat	84	84	62	75	81	69	78	12	69	69
Rice	84	84	91	66	81	72	59	53	72	53
Sp.Wheat	84	94	81	69	81	75	12	47	69	50
Soybean	34	9	0	12	12	25	16	31	3	31
Snapbean	44	34	0	9	53	31	62	62	56	50
Alabama Crowder peas	22	12	0	6	28	28	28	28	19	41
Black Eye California peas	22	16	6	9	31	28	22	41	22	25
English peas	59	81	78	59	78	34	62	72	56	56
Cotton	3	9	0	0	6	0	9	28	94	37
Kenaf	47	25	6	6	56	44	44	0	0	28
Beet	9	9	3	3	12	22	25	0	0	66
Cucumber	72	56	22	37	59	50	37	0	0	47
Cabbage	28	34	22	22	25	37	37	0	0	47
Chinese Cabbage	28	25	22	22	22	47	19	0	0	91
Radish	28	44	34	34	41	41	37	0	0	75
Onion	81	72	78	78	78	72	66	0	78	87
Lettuce	9	9	6	19	9	44	19	0	0	66
Endive	31	56	34	53	56	50	28	0	3	72
Romaine	25	34	37	41	47	69	41	0	12	66
Spinach	16	31	3	6	19	31	22	0	0	31
Pepper	37	31	16	41	34	50	53	0	6	53
Tomato	0	0	0	0	28	53	0	0	0	9
Carrot	19	69	75	72	84	81	59	0	59	78
Celery	87	81	97	97	94	78	78	50	72	78
% Control Crabgrass after										
10 days	19	34	47	53	12	16	69	62	59	84
30 days	3	0	9	0	0	3	50	12	16	97
% Control Stickerweed after										
10 days	50	81	94	87	59	37	72	97	100	3
30 days	81	100	100	100	91	41	22	81	100	0

- M.E.L. [35(75.9)]

483. HEIKES, P.E. (State Coll., Bozeman, Montana, U.S.A.) Chemical weed control in field crops. Montana State Coll. Ext. Serv. Bull., 1959, 308, pp.23, figs.5, tabs.1.
Recommendations for field crops are given in a table listing the crop, weed problems, chemical, rate/ac, and further relevant details. Pictorial guides show when it is safe to spray small grains and flax. A final section discusses adjusting spray equipment, types of sprayers and band applications. - J.W.B. [W2(78.6)]

484. BONDARENKO, D.D. (Agric. Exp. Sta., Ohio, U.S.A.) Herbicides to control weeds in field crops 1960. Ext. Leafl. Ohio agric. Ext. Serv., 1960, 75, tabs.1.
Recommendations listed are the same as those for 1959 with the following exceptions: soybeans - Amoben [3-amino-2,5-dichlorobenzoic acid] 3 # pre-em. in 20-40 gal water for experimental use only, dinoseb (amine) 2.25 # post-em. in 40 gal water, while CDAA is no longer recommended; maize - atrazine (Atrazine 80W) 2 # pre-em. in 20-40 gal water for experimental use only; sugar beet - endothal 4-6 # applied at planting in 20-40 gal water; oats - amitrol no longer recommended for control of Scotch thistle [Onopordum acanthium]; quackgrass [Agropyron repens] - dalapon 8 # + amitrol 4 # applied in autumn in 40 gal water; woody plants - fenuron dry pellets at 50-75 # applied as a soil treatment. - J.W.B. [48(77.1)]

485. WOOFTER, H.D. (State Univ., Ohio, U.S.A.) The retention and effect of 2,4-dichlorophenoxyacetic acid (2,4-D) sprays on winter wheat. Diss. Abstr., 1959, 20, (6), 1949-51, Microfilm $2.00, pp.94.
An investigation into the effects on spray retention of stage of development and variety of wheat, rates and formulations of 2,4-D and volume of spray, and of the influence of these sprays on winter wheat yield, seed weight and viability. - J.W.B.

486. RADEMACHER, B. (Landw. Hochschule, Stuttgart-Hohenheim, Germany). Ein Beitrag zur Nachwirkung des Simazins und anderer Herbizide im Mais auf die folgenden Früchte. [The residual effect of simazine and other herbicides in maize on the following crops.] Gesunde Pflanze, 1960, 12, (2), 21-5, (G.), tabs.3, bibl.2.
Spring barley (var. Isaria Nova) and potatoes (Ackersegen) were not affected when sown on plots in which maize had been grown the previous year and treated with calcium cyanamide 400 kg/ha, 2,4-D (butylglycol), 2,4,5-T (lactic ester) or simazine 1.5 or 3 kg/ha. The effect on yield of the maize, costs of controlling weeds, weeding time and incidence of smut are given; the growth regulators applied when the crop was 8-12 mm high appeared to cause increased susceptibility to smut whereas the other compounds did not. - L.K. [O.W.]

487. ORSENIGO, J.R. (Everglades Sta., Belle Glade, Florida, U.S.A.) Primary evaluation of pre- and post-emergence herbicides in vegetable and field crops, Fall 1957. Mimeo. Rep. Fla Everglades Exp. Sta., 1958, 59-5, pp.10.
Describes replicated experiments on 36 vegetable and 6 field crops with 32 pre-em. and 16 post-em. herbicidal treatments.
Effective control of broadleaf and annual grass weeds was given by pre-em. applications of amitrol 4 #, dinoseb 9 #, CDAA 8 #, CDEC 8 #, chlorpropham 8 #, diuron 2 #, monuron 2 #, EPTC 6 # and the triazines 6 #. 2,4,5-TP 2 # and dalapon 10 # controlled only grass weeds. Celery was tolerant to CDAA, CDEC, chlorpropham, EPTC, propazine and 2-chloro-4-diethylamino-6-isopropylamino-s-triazine (G-30031); snapbean to dinoseb, CDAA and monuron; and sweet corn to dinoseb, CDAA, EPTC, simazine and G-30031. Weed control by post-em. treatments was most effective with 2,4-D 1 #, 2,4-D (amide) 1 #, amitrol 1 #, monuron 1.5 #, dinoseb 4.5 # and FW 450 (sodium 2,3-dichloroisobutyrate) 10 #. Celery and leaf and cole crops were tolerant to FW 450. Other herbicides tested were polychlorobenzoic acids, dimethylammonium polychlorobenzoate, MCPB, 2,4-DB (dimethylamine salt, butyl and propylene glycol butyl ether esters), 2,4-DES, 3Y9, DCU, ethyl xanthogen disulphide, 3,4-dimethylbenzophenone, neburon, trietazine and 3 classified. The crops were spinach, beet, onion, carrot, celery, parsley, broccoli, Chinese cabbage, mustard, collards, tomato, radish, endive, lettuce (3 varieties), romaine, turnip, pepper, English peas, Southern peas, snapbean (2 varieties), Lima bean, cucumber, pumpkin, summer and winter squash, oat, rice, sweet corn (2 varieties), field corn, kenaf and okra. - M.E.L. [31(75.9)]

488. IVENS, G.W. (Univ. Dep. Agric., Oxford, England). Preliminary trials with simazin as a pre-emergence herbicide in maize. Proc. Afr. Weed Control Conf., 1958, 1960, 72-5, tabs.1.
Under moist conditions simazine at 1 # killed a wide range of weeds at stages varying from germination to 1-2 in. high and gave longer control than 2,4-D, but 2,4-D at 1 # was more effective than

simazine under 'dry conditions'. At rates up to 8 # simazine caused no apparent effect on maize at any stage of growth. 2,4-D 0.5-2 # caused no injury when applied pre-em. or to maize 2-3 in. or 18-24 in. high but at stages from 6-15 in. abnormality in leaves and prop roots were noted. Leaf abnormalities did not occur from rates below 1.5-2 # and were not numerous at those rates, but 4 # caused much injury and reduced growth. In 1 trial MCPA applied to maize 18-24 in. high resulted in serious lodging even from 0.75 # while no lodging resulted from 2,4-D at rates up to 4 #.

In a discussion following the paper, Dr. Naude said that in South Africa the amine of 2,4-D had caused more maize injury than the ester; rain shortly after spraying apparently washes it down to the roots with bad effects. In the western part of the Union, aerial spraying with 2,4-D (ester) has controlled Geigeria spp. successfully, regrowth after 3 years being only 1%.

Mr. Hattingh reported better weed control in maize with 2,4-D 1 # pre-em. + 0.5 # post-em. than with 1.5 # pre-em. The best practice in South Africa is to kill all weeds 14 days after the first rains and to plant maize with the next rains; 2,4-D (ester) applied thus will control weeds for the whole season. Simazine 5 # had been satisfactory in maize with a high, but not with a low, rainfall. Datura [?stramonium], Mexican marigold [Tagetes minuta] and blackjack [Bidens pilosa] had been well controlled by 2,4-D (ester) 2.5 # pre-em. + a smaller dose post-em. 2,4-D applied either pre-em. or 2-4 weeks post-em. had failed to control witch-weed [Striga spp.]. Mr. Wilson Jones said that in the Sudan, where the soil was a heavy clay, spraying 2-3 weeks after sowing the sorghum did not eradicate the Striga but delayed its emergence until the sorghum could withstand its effects. - D.M.L.S.

[O.W.]

489. FUNDERBURK, H.H. Jr. and DAVIS, D.E. (Agric.Exp.Sta., Poly.Inst., Auburn, Alabama, U.S.A.) Factors affecting the response of Zea mays and Sorghum halepense to sodium 2,2-dichloropropionate. Weeds, 1960, 8,(1),6-11, tabs.5,bibl.12.

In experiments on Norfolk sandy loam soil, maize sown on April 9th, 16th, 23rd, 30th or May 6th was sprayed on dates May 9th, 16th or 23rd with dalapon 8 # or 2 # in 54 gal.

Spray dates but not age of corn affected the toxicity of dalapon; thus 2 # was nearly as toxic as 8 # at the first, but not at the later, spraying. Growth in height was decreased by 2 # and completely stopped by 8 #. This occurred through decrease in length, rather than number, of internodes, particularly the upper 1/3 of the internodes. Dalapon interfered with elongation without causing the death of cells of the intercalary meristems.

The % germination of seed from maize treated with dalapon 2 # and the average height of the plants 4 weeks after germination did not indicate any carry over of dalapon to succeeding generations. Both dry weight and height data showed dalapon to be more effective when applied to roots rather than to shoots of maize.

Measurement of average height of 11 maize hybrids 2 and 4 weeks after treatment with dalapon 2 # when 3 weeks old showed that the variation in susceptibility was not correlated with the period of maturity of the hybrids.

Pfister 631 and Pioneer 309A were the most susceptible and U.S.13, Dixie 29 and Coker 811 the least. Other hybrids tested were Minhybrid 611, Wisconsin 642, Funks G-50, Mosby, Dixie 82 and Dixie 18.

In greenhouse experiments, Sorghum halepense 3, 6, 9 and 12 weeks old was sprayed with dalapon 5 # and 20 #. The dry weight of shoots from young plants 2 weeks after spraying was less than that from unsprayed plants; older plants were not affected. A second estimation 3 weeks after the first showed that all the plants were susceptible, 3 and 6 weeks old > 9 and 12 weeks. - M.E.L.

[O.W.]

490. FRANS, R.E. Effect on soybeans of herbicide and narrow row width combinations. Rep.Arkans.agric.Exp.Sta., 1959, Ser. 84, pp.19, figs., bibl.3.

Results of experiments with soyabeans grown at 4 locations in Arkansas at row-spacings varying from 7 to 42 in. indicated that yields equal to or greater than those where the conventional 36-42 in. spacing was used, could be obtained by using narrower row-spacings, except on soils with a relatively shallow clay-pan. Under dry conditions, soyabeans grown in closely-spaced rows gave the highest yields, whether or not weeds were present. Plant competition was severe in soyabeans grown at intermediate row-spacings where no weed control measures were applied. At one location, highest yields were obtained at 7 in. row-spacings where 7.5 # chlorpropham was applied at sowing. Where heavy rainfall occurred shortly after sowing chlorpropham applied at sowing caused considerable phytotoxicity. Early post-em. applications of dinoseb alkanolamine at 2.5 # gave good weed control without damaging the crop. - Field Crop Abstr., 13,212.

[26(76.7)]

491. * MASUO, Y. and MURAKAMI, J. [Weed control in fibre flax by herbicides. I. The effects of 2,4-D and MCPA.] Res.Bull.Hokkaido Nat.agric. Exp.Sta., 1959, 74,119-26, (Jap.e.)

492. * NODA, K., EGUCHI, S. and KUMAMOTO, T. [PCP as a herbicide to wheat and barley fields in the warmer region of Japan.] Kyushu agric.Res., 1959, 21,87-9, (Jap.)

493. BARANOV, V.M. [The economics of herbicidal applications in flax.] Len i Konoplya, 1959, (6),12-15, (Russ.)
A comparison of the cost of spraying by knapsack sprayer, horse drawn sprayer, tractor sprayer and aerial spraying. - From Ref.Zh.Biol., 1959, 1659. - L.K.

494. PALMER, R.D. and ENNIS, W.B. (Agric. Exp.Sta.,State Coll.,Mississippi,U.S.A.) Periderm formation in hypocotyl of Gossypium hirsutum L. and its effect upon penetration of an herbicidal oil. Weeds, 1960, 8,(1), 89-93, figs.6,bibl.10.
Microscopic examination of sections of cotton hypocotyls at various stages of development showed that young plants <ca. 27 days old had an intact epidermis and old plants >ca. 59 days old had a well developed cork layer and were therefore impervious to oil. After rupture of the epidermis (i.e. when >27 days old) and before cork formation cotton was susceptible to oil sprays. - L.K. [O.W.]

495. * HUGHES, J. Better weed control in seedling cotton. Cotton Gin & Oil Mill Press, 1959, 60,(6),60.

496. POPOVIC, Z., TOSIC, L. and TOMLJENOVIC, T. Prilog poznavanju ishrane Orobanche ramosa L. na duvanu. [Studies on the nutrition of Orobanche ramosa L. on tobacco.] Arhiv poljopr.nauke,1958,11,(33),34-7.
It was found that in tobacco parasitised by Orobanche a greater proportion of phosphate remained in the crop plants from foliar, than from soil, applications. - From Ref.Zh.Biol., 1960, 1679. - L.K.

497. BLACK, C.C. and RODGERS, E.G. (Agric. Exp.Sta.,Florida,U.S.A.) Response of Pensacola bahiagrass to herbicides. Weeds, 1960, 8,(1),71-77, bibl.5.
Describes 5 experiments to evaluate the response of Pensacola bahiagrass at various growth stages to the following herbicidal treatments:- propylene glycol butyl ether esters of 2,4,5-T + 2,4-D 1:1 (1.5-9 #), 2,4,5-TP (1.5-6 #), and 2,4-D (1.5-6 #); 2,4,5-T (triethanolamine salt) 1.5-9 #; 2,4,5-TP (iso-octyl ester) 1.5-6 #; amitrol 1.5-6 #; 2,3,6-TBA (oil soluble formulation) 1.5-6 #; 2,3,5,6-TBA (1.5-6 #) each in 36 gal. In greenhouse experiments all seedlings were damaged to various degrees by all treatments. Seedlings <2 in. with 3 to 5 leaves and no tillers were dead 6 weeks after treatment; seedlings >5 in. with 3 or more tillers showed signs of recovery 10 weeks after treatment.
Use of 10:1 water oil emulsion, rather than water, as diluent approximately doubled the injury to seedlings (propylene glycol butyl ether esters of 2,4,5-T, 2,4,5-TP, 2,4-D + 2,4,5-T; 2,4,5-T (triethanolamine salt), 2,4,5-TP (iso-octyl ester) 1.5-6 #). In the case of 2,4-D + 2,4,5-T (esters) the use of water oil emulsion was less severe than the use of diesel oil alone.
In field experiments, the tolerance of plants to herbicides was >greenhouse plants and reached a maximum with 3 developed tillers. Seedlings at this stage were not damaged by 2,4,5-T (propylene glycol butyl ether or triethanolamine) 6 #, 2,4,5-TP (iso-octyl and propylene glycol butyl ether esters) 6 #, amitrol 6 #, and 2,3,5,6-TBA 6 #, and the propylene glycol butyl ether esters of 2,4-D + 2,4,5-T 3 #. Established 4-year old bahiagrass sod was tolerant of all treatments up to 9 # and there was no reduction in forage production. - M.E.L. [O.W.]

498. UNITED STATES. Crop protection. Crops & Soils, 1960, 12,(4),25.
Austrian field pea (Swainsona salsula), which is a noxious weed in Colorado and Wyoming, has been found in Canada.
Karmex [diuron] 2 and 4 # has given satisfactory control of Ladino clover, annual ryegrass and star thistle [Centaurea spp.] in birdsfoot trefoil [Lotus corniculatus]; Telvar [monuron], at the same rates, was not as effective. - J.W.B. [O.W.]

499. UNITED STATES. You can establish good forage stands without companion crops. Crops & Soils, 1960, 12,(5),7-9, figs.3.
Short reports from research workers in Illinois, Iowa, Michigan, Minnesota and Ohio on the use of weedkillers to establish legumes are included. Good results have been obtained in Illinois and Ohio with 2,4-DB 1 # + dalapon 2 # post-em. (2-4 leaf stage) in lucerne. In Michigan EPTC 2 # incorporated into the soil before planting has shown the most promise of several weedkillers. - D.M.L.S. [O.W.]

Noted

500N. WOODALL, W.E., WELLHAUSEN, H.W. and SPURLOCK, P.M. (Agric.Ext.Serv., Fayetteville, Arkansas, U.S.A.) Chemical weed control in cotton production. Ext.Leafl.Ark. agric.Coll., 1958, 259, pp.8.
Gives recommendations for the pre-em. use of chlorpropham and diuron and the post-em. use of oils. - L.K. [O.W.]

501N. WOODALL, W.E. (Agric.Ext.Serv., Univ., Fayetteville, Arkansas, U.S.A.) Arkansas cotton defoliation guide. Ext. Leafl.Ark.agric.Coll., 1959, 282, pp.8, tabs.2. [24(76.7)]

502N. GERMANY. (Kleinmachnow, Stahnsdorfer Damm 81, Germany). Die chemische Unkrautbekämpfung in Faserlein. [Chemical weed control in flax.] Merkblatt prakt.PflSch. Biol.Zentanst.Berl., 1959, 1, pp.1, (G.)
Gives recommendations for the use of MCPA and/or DNOC. - L.K. [208(43)]

HORTICULTURAL, ORNAMENTAL AND PLANTATION CROPS

See also 482, 483, 487, 543, 566.

503. GUAGLIA, A. Il diserbo chimico delle colture orticole. [Chemical weed control in horticultural crops.] Inf. Fitopat., 1959, 9, (3), 36-40, (It.)
Includes the information that chlorpropham and 2,4-DES may be used in carrots and celery before the appearance of the first true leaf; that monuron 1-4 kg/ha and calcium cyanamide may be used pre-em. in peas and beans and that potatoes may be treated pre-em. with monuron 1-1.5 kg/ha or dalapon 3.5 kg/ha. - From Ref.Zh.Biol., 1959, 92842. - L.K.

504. CANADA. Recherches agronomiques. Sommaire des resultats 1957-8. [Agricultural research. Summary of results 1957-8.] Min.Agric.Quebec, (n.d.), 4, pp.61, (F.)
p.52. "Choux de Siam". Of various weedkillers tried in "Choux de Siam" the best yields were obtained with TCA 32 # pre-em., dalapon 32 # pre-sowing and pre-em., and potassium cyanate 32 # pre-em. TCA and dalapon applied pre-em. caused some injury and all post-em. applications were too injurious to be advisable.
p.53. Garden Beet. TCA 10 # and EPTC 8 # both applied pre-em. in 60 gal water/ac caused no apparent damage to beets and gave excellent control of annual grasses. EPTC also gave 82% control of Chenopodium spp. and 50% of Polygonum persicaria. - D.M.L.S. [O.W.]

505. SUKORTSEVA, K.D., NEKHLYUDOVA, E.T. and KHALIN, G.A. [The use of herbicides in sowings of onions.] Konserv.ovosh.Prom., 1959, (6), 35-6, (Russ.)
With reference to the use of TCA. - From Ref.Zh.Biol., 1960, 1663. - L.K.

506. ORSENIGO, J.R. (Everglades Exp.Sta., Fla, U.S.A.) For direct-seeded cabbage try pre-emergence chemical weed control. Agric.Res. Rep.Sunshine State (Fla State), 1959, 4, (1), 14-15.
CDAA and CDEC at 4, 6 and 8 # applied 1 or 2 days after seeding cabbage on organic soil both gave excellent control (and in all cases better than mechanical cultivation) of grasses and broad-leaved weeds (mainly Portulaca oleracea), without harming the crop. Recommendations given for grower trials are (1) use CDAA for 'grassy' fields and CDEC where broad-leaved weeds predominate, (2) 4-6 # is usually sufficient, and (3) best results are obtained on freshly prepared soil as these herbicides will not control emerged weeds. - J.W.B. [35(75.9)]

507. SCOTT, H.E. (N.Carolina State Coll., Raleigh, N.C., U.S.A.) Insecticides combined with herbicidal oil for the control of the carrot rust fly, Psila rosae. J.Elisha Mitchell Sci.Soc., 1959, 75, 22-24.
Parathion, dieldrin, aldrin, lindane, chlordan, and DDT when applied at a rate of 2 # in herbicidal oil (Stoddard solvent type) gave significant reductions in the number of infested carrot roots at harvest. Foliage injury occurred consistently when DDT was used; however, the injury did not cause significant reductions in yield. Off-flavours were noted in chlordan-, lindane-, and parathion-treated carrots. - Chem.Abstr., 53, 19283f.

508. GREAT BRITAIN. Chemical weed control in carrots, parsnips and parsley. Adv.Leafl. Min.Agric.Fish.Fd, 1959, 478, pp.4.
Recommendations for the post-em. use of oils and pre-em. use of PCP, cresylic acid and oils. - L.K. [O.W.]

509. NOMURA, M. [The use of chlorpropham in floriculture.] Agric.& Hort., 1958, 33, (10), 1533-6, (Jap.)

The properties of chlorpropham and its application characteristics are described. No injury was caused by treating Antirrhinum majus, Calendula officinalis, Callistephus chinensis, Centaurea cyanus, Coreopsis tinctoria, Silybum marianum, Lupinus luteus, L. hirsutus, Bellis perennis and Gaillardia aristata. - Ref.Zh.Biol., 1959, 97231.

510. CHAMPION, J. and MONNET, J. (I.F.A.C., 6 rue du General Clergerie, Paris 16, France). Essais d'herbicides en bananeraie. [Herbicide trials in banana plantations.] Fruits, 1959, 14,(11),459-64, (F.e.span.russ.), figs.2,tabs.6,bibl.3.

In trial 1, monuron 10 kg/ha applied between the rows in a channel irrigated plantation immediately before planting var. Fassara 1 gave good weed control for 8 months and a non-significant yield increase; 5 kg/ha was less effective. In trial 2, monuron 5 kg/ha applied in May to var. Poyos 50-70 cm high before the beginning of winter and the rains controlled weeds only for about 2 months and temporarily checked banana growth. Yield at the end of March was not significantly depressed but the January-February yield was retarded. Monuron 2.5 kg/ha and chloro amino triazine 0.625-2.5 kg/ha were less effective but did not reduce yields. Weed flora is specified. - D.M.L.S.

[O.W.]

511. HILGEMAN, R.H. Response of Marsh grapefruit to different methods of soil tillage in the Salt River Valley of Arizona. J.Rio Grande Valley hort.Soc., 1959, 13, 9-17.

Over 9 years' trials no significant differences in yield were noted from (1) no cover crop; (2) spraying with herbicidal oil, and (3) 2 annual diskings for cover plants with cutting between. Permanent Bermuda grass cut 8 times a year definitely reduced yields over 4 years. - From Fruits, 14,(11),295,10183. - D.M.L.S.

512. KRAMER, M. O emprego de ervicidas na campanha de erradicacao do "canero citrico". [The use of herbicides in the eradication of "citrus canker".] O Biologico, 1959, 25,(5),91-7, (Portuguese).

In trials to kill orange trees attacked by "citrus canker", fenuron 3 and 6 g/tree was ineffectual and AMS 100 and 500 g/l water (180 ml/tree) caused only slight leaf damage. 2,4,5-T (ester) 2 and 4% in diesel oil applied to the trunks and to sprouts gave excellent results. - From Fruits, 14, (11),296,10192. - D.M.L.S.

513. ORSENIGO, J.R. The tolerance of sugar cane to pre-emergence and post-emergence applied herbicides in screening experiments on organic soil. Mimeo.Rep.Fla Everglades Exp.Sta., 1959, 59-11,pp.3, tabs.10.

In replicated experiments on sugar cane on organic soils, the effects of herbicides alone or combined were evaluated 1 month after application. The herbicides tested (a) pre-em. and (b) post-em. were:- PBA (polychlorobenzoic acids) (a),(b) 8 #; 2,4-D (acid) (a),(b) 2 #; 2,4-D (amide) (a) 10 #, (b) 8 #; 2,4,5-TP (a) 6 #, (b) 4 #; 2,4-DB (dimethylamine) (a) 8 #, (b) 4 #; 2,4-DB (butyl ester) (a) 5 #, (b) 4 #; 2,4-DB (propylene glycol butyl ether ester) (a),(b) 8 #; MCPB (a),(b) 4 #; As_2O_3 (a),(b) 6 #; diuron (a),(b) 2 #; EPTC (a) 6 #, (b) 5 #; FW-450 [2,3-dichloroisobutyrate] (a) 10 #, (b) 20 #; HCA (hexachloroacetone) (a) 24 #, (b) 14 # in diesel oil 15 gal; monuron (a) 3 #, (b) 2 #; neburon (a),(b) 2 #; simazine (a) 10 #, (b) 5 #; substituted s-triazines G-27901 (trietazine), G-30026 (2-chloro-4-isopropylamino-6-methylamino-), G-30027 (atrazine), G-30028 (propazine), G-30031 (2-chloro-4-diethylamino-6-isopropylamino-) (a) 8 #, (b) 5 #. Pre-em. applications were also tested of PBA (dimethylammonium) 4 #; 2,4-D (amine, amine invert and ester invert) 2 #; dalapon 5 #; DCU 20 #; Gen CC 2996 (3-p-chlorophenyl)-1,1-dimethylurea trichloroacetate) 8 #; PCP (sodium) 10 #; 2-chloro-4,6-bis(diethylamino)- and 2-methoxy-4,6-bis(isopropylamino)-s-triazine 8 #; and the following mixtures:- amitrol 1 # + simazine 4 #; dalapon 4 # + monuron 2 # or 2,4,5-TP 1 #; 2,4-D acid 2 # + diesel oil 15 gal + PCP 5 #; 2,4-D (amine) 2 # + diesel oil 10 gal + PCP 8 #. Post-em. applications were tested of CDAA 4 #; HRS-203 4 #; NIA 6 #, and combinations of amitrol, dalapon, FW-450, NIA 4562, PCP and triazines with other herbicides.

Sugar cane was tolerant to all pre-em. treatments and to all post-em. treatments except amitrol 2 # + simazine 5 #, amitrol 2 # + FW-450 15 #, amitrol 2 # + dalapon 4 # + 2,4-D 2 #, NIA 4562 2 # + PBA 5 #, NIA 4562 2 # + G-30027 5 # and G-30031 5 # + 2,4-D acid 2 #.

The major weed species were Parietaria floridiana, Amaranthus sp., Brachiaria plantaginea, Solanum nigrum, Physalis sp. and Digitaria sp.

Superior control of grass weeds was obtained by pre-em. applications of PBA, 2,4-D (amide), 2,4-DB, Genec 2996, simazine, G-30027 and 2,4-D in diesel oil + PCP; and by post-em. applications of combinations

containing amitrol, dalapon, FW-450, NIA 4562, PCP, simazine and G-30031. - M.E.L. [34(75.9)]

514. * GONZALEZ, O.C. El uso de herbicidas en los cafetales de Costa Rica. [The use of herbicides in the coffee plantations of Costa Rica.] Mex.Agr., 1959, 6,(61),52-6.

Noted

515N. GREAT BRITAIN. Chemical weed control in horticultural crops. Adv. Leaf1.Min.Agric.Fish.Fd, 1959, 476,pp.6. [O.W.]

BIOLOGY OF WEEDS AND POISONING BY WEEDS

See also 496,552,560.

516. ZEILER, M.E.H. De invloedvan weersgesteldheid en gewas op de onkruidbegroeiing van een droog zandbouwland. [Influence of weather and crop on the weed growth of a dry sand arable field.] Meded.Inst. Biol.Scheikundig Onderz., 1959, 90,pp.6, (Du.e.), tabs.2,bibl.3; Jaarb.I.B.S., 1959, 175-80.
Gives the preliminary results of monthly observations, carried out over 5 years, on the weed flora of a field in which the crop rotation was oats, oats, rye, oats, oats. - L.K. [191(492)]

517. WILLIAMS, C.N. The parasitism of witchweed - a review. W.Afr.J.Biol.Chem., 1958, 2,(3),57-73, bibl.106.
Describes the characteristics of Striga lutea and S. hermontheca which parasitise cereal crops. Their distribution in Africa and Asia is described. - Ref.Zh. Biol., 1959, 92850.

518. MIGACHEVA, G.F. [The problem of studying dodder on the Sovhoz "Vasilevskii".] Uch.Zap.Biol.Pochv.Fak.Kirg.Univ., 1958, (7),55-63, (Russ.)
Includes reference to an infestation apparently due to contaminated manure and to the 3 spp. found parasitising kenaf.-From Ref. Zh.Biol., 1959,92866. - L.K.

519. IKRAMOV, M. [The Egyptian broomrape on Lagochilus.] Trud.Uzbek.Univ., 1958, (84), 41-4, (Russ.)
Decreasing irrigations from 3 to 2 decreased the parasitism of Lagochilus inebrians by Egyptian broomrape [Orobanche sp.]. With insufficient moisture parasitism does not occur. - From Ref.Zh.Biol., 1960, 1680. - L.K.

520. MAKLAKOVA, G.F. [Plasmodiophora brassicae Wor. on cruciferous weeds.] Bot. Zh.S.S.S.R., 1959, 44,(11),1649-53, (Russ.), figs.2,tabs.1,bibl.3.
Mainly with reference to the importance of Raphanus raphanistrum and Sinapis arvensis as alternative hosts of P. brassicae. - L.K. [O.R.]

521. MIRASHI, M.V. (Dep.Bot.,Gov.Coll.Sci., Nagpur,India). Contribution to our knowledge of the physiological anatomy of some Indian hydrophytes. IX. The stem of Limnophila heterophylla Benth. Proc.Indian Acad.Sci., 1959, 50,(1),46-50. [O.R.]

522. * MACALPINE, R.I. A note on Mikania scandens. Tocklai Exp.Sta.Newsletter, 1959, 6,(1),6-8.

523. BOMMER, D. (Inst.Grünlandwirtschaft, Univ.,Giessen,Germany). Trennung von Schossvorgang und Blütenanlage bei Glatthafer Arrhenatherum elatius (L.) J.et Pr. [The separation of shooting and flower formation in onion couch, Arrhenatherum elatius L. J. et Pr.] Naturwissenschaften, 1960, 47,(3),71, (G.), tabs.1,bibl.3.
The normal flowering shoots of A. elatius are laid down in the previous autumn. The shoot of the plant may give rise to side shoots during the summer. These are generally sterile; however, a fertile ear may develop. These leafy shoots are characterised by short internodes. The development of flowering stalks was found only to occur under long day conditions after a period of vernalisation: temperatures of 5-15°C and days of 10 hours accelerated flower development most. Temperatures of 15-25°C before vernalisation reduced the effect of the low temperature short day treatment somewhat and resulted in sterility in the older shoots. When transferred to long day conditions after 40 days at low temperature and short days, flower formation only occurred at low temperatures.

It is suggested that other grasses probably behave similarly. - L.K. [O.R.]

524. * FODA, H.A.M. Dormancy in seed of Xanthium pennsylvanicum. Ph.D.Thesis, Manchester Univ.

525. * TSUKAMOTO, M. and KITAKAMI, M. (Hyogo Agric.Coll.) [Ecological studies on field weeds. I. On the distribution and seasonal change of field weeds.] Agric.& Hort., 1957, 32,(7),1082-4, (Jap.)

526. * PHATAK, V.G. and OZA, G.M. Some useful weeds of Baroda, its neighbourhood, and Pavagadh. Bombay Nat.Hist.Soc.J., 1958, 55,(3),532-42.
Drug plants.

527. * GEORGE, K. A general survey of the weeds of Calcutta and its suburbs. Allahabad Farmer, 1959, 33,(2),85-138.

528. * HAUSBRANDT, L. and DALKIEWICZ, H. Commelina communis L. - a weed little known in Poland. Fragm.flor.Pol., 1958, 4,(1-2).

529. KUWABARA, Y. [Weed seeds and seedlings growing on cultivated fields of Hokkaido.] Hokurika J. Geobot., 1958, 7,(1),6-10, (Jap.)
Describes with illustrations, the seeds and seedlings of Ambrosia artemisiifolia, Bidens tripartita, B. radiata, Taraxacum hondoense, Youngia japonica, Plantago lanceolata, Veronica persica and Cuscuta japonica. - From Ref.Zh.Biol., 1959, 97230. - L.K.

530. KUWABARA, Y. [The development of weeds in cropped fields; the characteristics and classification of the seeds and seedlings. 10.] Hokurika J.Geobot., 1958, 7,(3),78-81, (Jap.)
Describes with illustrations the seeds and seedlings of Hieracium pratense, Lychnis alba, Polygonum perfoliatum, P. sachalinense, Luzula capitata, Agropyron repens, Agrostis clavata and Anthoxanthum odoratum. - From Ref.Zh.Biol., 1959, 97229. - L.K.

531. ROJAS-GARCIDUENAS, M. and KOMMEDAHL, T. (Dep.Plant Path.& Bot.,Inst.Agric.,St.Paul, Minnesota,U.S.A.) The effect of 2,4-D on germination of pigweed seed. Weeds, 1960, 8,(1),1-5, tabs.3,bibl.9.

The yield of seed from unsprayed pigweed (Amaranthus retroflexus) was 24 g/plant and from pigweed sprayed when in flower with 2,4-D 1 lb, 11 g/plant. In Petri dish experiments (a) 15 days, (b) 5 months after harvest, the germination of seeds from unsprayed plants was (a) 2%, (b) 10% and from sprayed plants (a) 11%, (b) 50%. Germination of seeds scarified with H_2SO_4 and immersed in 5, 25, 50 and 500 p.p.m. solutions of 2,4-D for 1 hour was the same as controls (i.e. seeds untreated with H_2SO_4 or 2,4-D). Immersion for 5, 20 or 30 hours almost completely inhibited germination. The % germination of non-scarified seed was significantly increased by immersion in 2,4-D solutions of 25 and 50 p.p.m. for 1 hour, 5, 25 and 50 p.p.m. for 5 hours and 5 and 25 p.p.m. for 20 to 30 hours. Germination was inhibited at 500 p.p.m. for 20 or 30 hours. - M.E.L. [O.W.]

532. POLENOV, L.V. [The biology of the germination of weed seeds.] Ukr.bot.Zh., 1959, 16,(2),39-51, (Ukrainian,russ.e.)
The germination of freshly fallen seeds of 26 weed species of different biological groups occurring in the Steppe zones of the U.S.S.R. was determined. - Ref.Zh. Biol., 1959, 101569.

533. LEWIS, J. (Welsh Plant Breed.Sta., Aberystwyth,Wales). Longevity of crop and weed seeds. 1. First interim report. Proc.int.Seed Test.Ass., 1958, 23,(2), 340-54, bibl.22.
The results are given of 4 years' investigations of the viability of the seed of 39 species and varieties of cereals, grasses, herbage legumes and weeds stored under dry conditions and then buried in the field at depths of 5, 10 or 15 in. in mineral and peat soils for periods up to 4 years. Wild oat seed had a germination of 1% after 4 years' storage in soil. Peat soils were more detrimental to seed viability than mineral soils. The results are also given of trials with herbage species. In studies on 9 arable weeds, the seed of most species lost very little viability in mineral soils for 4 years. Geranium molle and G. dissectum were exceptional in showing less than 1% viability after storage in soil for 4 years. Except for Plantago lanceolata seed, which had a germination of 43% at the end of 4 years' storage, the remaining species, including Chenopodium album, Lychnis alba [= Melandrium album], Matricaria inodora, Rumex crispus, Polygonum persicaria and

Ranunculus repens all had low germination percentages and a high incidence of dormancy. Only P. persicaria, R. repens and R. crispus showed appreciable viability after storage for 4 years in peat. Under conditions of granary storage, viability was maintained well in all species for one year and fell rapidly after 2 years, except in the case of weed species. Dry storage of the seed of all species at a temperature of 32°F + 20°F maintained a high level of viability for several years. - From Field Crop Abstr., 13. J.W.B.

534. BRITTEN, E.J., PALAFOX, A.L. and MATSUMOTO, H. (Agric.Exp.Sta.,Hawaii, U.S.A.) Selection for toxicity in single plants of Indigofera endecaphylla by biological assay. Agron.J., 1959, 51, (11),651-4, figs.7,tabs.2,bibl.5.
Day-old chicks were fed on Indigofera endecaphylla to assess the toxicity of individual plants. A high correlation was found between this test and a chemical test for 3-nitropropionic acid. - J.W.B. [O.RE.]

535. PUTILIN, A.P. [The poisonousness of Lepidium coronopifolium Fisch.] Bot.Zh. S.S.S.R., 1959, 44,(11),1665-6, (Russ.), bibl.2.
Reports the poisoning of horses by L. coronopifolium. - L.K. [O.R.]

536. * UNDERHILL, J.E. A case of hellebore poisoning. Canad.Field-Nat., 1959, 73,(2),128-9.
Veratrum eschscholtzii in Washington.

537.* YOUNGMAN, B.J. "Parsnip" dermatitis. Kew Bull.Kew Roy.Bot.Gdn,1958, 1959, 3,387-90.
Pastinaca and Heracleum.

538. * COHART, E.M. and KANDLE, R.P. The effects of a ragweed control program on ragweed pollen counts. J.Allergy, 1959, 30,(4),287-98.

AQUATIC AND WOODY WEEDS AND THEIR CONTROL

See also 560,568.

539. BHIMACHAR, B.S. (Zool.Sect.,46th Session Indian Sci.Congr.,Delhi,India). Inland fisheries of India and their problems. Proc. 46th Indian Sci.Congr., 1959, (2),108-23.
Aquatic weed control. About 50-60% of cultivable waters in West Bengal, Assam, Orissa, Bihar, Uttar Pradesh and Madhya Pradesh are partially or completely unfit for fish culture owing to weeds. The author briefly mentions control methods which have been tried experimentally. - D.M.L.S. [21(54)]

540. EIPPER, A.W. (Dep.Conserv.,Cornell Univ.,New York,U.S.A.) Effects of five herbicides on farm pond plants and fish. N.Y.Fish & Game J., 1959, 6,(1),46-56.
This paper summarises data obtained from applications of Delrad 50 S (dehydroabiethylamine acetate, liquid form), Delrad 70 (paste form), Fermate (ferric dimethyldithiocarbamate), Phygon-XL (dichlone), copper sulphate and sodium arsenite in Central New York farm ponds over a 3 year period. It deals with the effects of these herbicides on submerged plants, some algae and various sizes and species of fish in 30 ponds. When applied as surface sprays 0.5 p.p.m. of Delrad, Fermate and copper sulphate all controlled unbranched filamentous green algae, but with regard to cost and fish safety copper sulphate was the most advantageous. Phygon at 0.25 p.p.m. killed neither fish nor plants in 7 ponds. Sodium arsenite at 4 p.p.m. controlled submerged plants and algae including Hydrodictyon and Cladophora (both little affected by the other chemicals) in 10 ponds. - Author's Abstract (modified). - R.J.C. [126(74.7)]

541. RANWELL, D.S. and DOWNING, B.M. (Nat. Conserv.Res.Sta.,Furzebrook,Wareham,Dorset, England). The use of dalapon and substituted urea herbicides for control of seed-bearing Spartina (cord grass) in inter-tidal zones of estuarine marsh. Weeds, 1960, 8,(1),78-88, figs.2,tabs.3,bibl.9.
Dalapon 20-50 # in August or a split dose of 20 + 30 # 3 weeks apart in July, diuron spray 20-60 # in April or August, monuron pellets 20 or 40 # in August, monuron + sodium borate pellets 500 and 1000 # in April or August all allowed considerable regrowth

of Spartina after 1-2 years, whereas fenuron spray 40-60 # still showed 99% kill 15 months after an April treatment. Pelleted fenuron 50 # and Ureabor [4% monuron + borates] 2000 # eradicated Spartina in pilot trials. In the trial areas tides covered the treated plots within 3 weeks; with pelleted formulations inundation appeared to increase activity while with sprays it was decreased. It is thought that repeated applications of dalapon might be promising as it inhibits seed formation. Dalapon 50 # has little or no effect on Salicornia stricta. - L.K. [O.W.]

542. LEVI, E. (Irrigation Res.Sta.,New South Wales,Australia). Chemical control of Typha angustifolia var. brownii. Weeds, 1960, 8,(1),128-38, figs.4,tabs.2,bibl.13.
Describes experiments to determine the factors governing the effectiveness of 2,4-D for the controlof Typha angustifolia var. brownii in irrigation channels. 2,4-D (ethyl ester) 6 # (in an emulsion containing 22% non-phytotoxic oil) was more effective when applied to Typha at 5-7 leaf stage (minimum rhizome reserves) than at the flowering stage (increasing rhizome reserves). Optimum control resulted when the water level was maintained at 3 ft after treatment. There was no significant interaction between concentration of 2,4-D and depth of water.
In formulations containing 20-30% of petroleum naphtha oil the effectiveness of 2,4-D (ethyl ester) at 12-24 # was reduced and that at 3-6 # increased. Effectiveness was not influenced by a non-phytotoxic oil or a slowly toxic diesel distillate. Oils, particularly the less toxic ones, improved the herbicidal properties of the water soluble 2,4-D (polyethylene glycol ester).
In drainage channels with variable water levels control of Typha by spring applications of amitrol 36 # or dalapon 30 # >> 2,4-D (ethyl ester) 6 #. Amitrol also gave effective control of other weeds present:- Paspalum distichum, Cyperus esculentus, C. rotundus, Juncus articulatus, etc. - M.E.L. [O.W.]

543. TOOHEY, C.L. (Bur.Sug.Exp.Sta., Nambour,Queensland,Australia). Is chemical control of the common reed possible? Proc. Queensland Soc.Sugar Cane Technol., 1959, 26,81-4, figs.1,bibl.3.
Dalapon > 10 # + wetter in 300 gal/ac showed considerable promise for the control of Phragmites communis and killed Cynodon dactylon and Digitaria adscendens. Sugar cane treated with up to 30 # showed only temporary injury which was outgrown in 6 weeks. - L.K. [132(94)]

544. van der WEIJ, H.G. and ROZENBOOM, G. (Inst.Biol.Scheikundig Onderz.,Wageningen, Netherlands). De chemische onkruidbestrijding bij het onderhoud van watergangen. [The chemical control of weeds in the maintenance of ditches.] Meded.Inst.Biol. Scheikundig Onderz., 1959, 77,pp.7, (Du. e.), figs.5; Jaarboek I.B.S., 1959, 65-71.
Includes the information that excellent control of Glyceria maxima was given by dalapon 15 and 30 kg/ha and on drained land by TCA 50 and 100 kg/ha; simazine and monuron 10 and 20 kg/ha were ineffective. Stratides aloides and Sium sp. may be controlled by MCPA 2 kg/ha; a second application 3-4 weeks after the first may be necessary. - L.K.[192(492)]

545. GREAT BRITAIN. Biological control of lantana. World Crops, 1960, 12,(2),57.
Teleonemia scrupulosa has given better results on Lantana camara in Zanzibar, where it was recently introduced, than elsewhere. It promises to eradicate the weed completely if assisted in spreading. - L.K. [O.W.]

546. CRAWFORD, H.S. (Southern For.Exp. Sta.,U.S.Dep.Agric.,U.S.A.) Effect of aerial 2,4,5-T sprays on forage production in west central Arkansas. J.Range Mgmt, 1960, 13,(1),44.
Aerial spraying in May 1957 of hardwood areas with 2,4,5-T (isooctyl ester) 2 lb + 1 gal diesel oil and 3.5 gal water/ac resulted in grass yield increases of over 25% in 1957, and of over 150% in 1958. Forb yield was reduced more than 50% in 1957 but was 6 times greater in 1958 and consisted mainly of undesirable species of low grazing value. Browse yield was reduced by ca. 70% in 1957 but in 1958 was about the same as that of the unsprayed areas; however, it showed an increase in those species preferred by deer, e.g. Vaccinium spp. and Vitis spp. - D.M.L.S. [O.W.]

547. LEONARD, O.A. (Univ.Davis,Calif., U.S.A.) Repeated application of herbicides to live oak sprouts essential for complete kills. Calif.Agric., 1960, 14,(1),15, tabs.1.
2,3,6-TBA and mixtures of polychlorobenzoic acids, at rates up to 32 # in 100 gal water, failed to kill Quercus wislizenii sprouts and amitrol gave poor or (at 8 # in 100 gal water) inconsistent results. 2,4,5-TP 4 # gave the best result (70% kill) when applied in June and 2,4-D + 2,4,5-T (esters) 4 # gave the

best sprout kill (60%) when applied in November if rains fell. 2,4-D (amine) was most successful after application in November or April which gave kills of 60-70% from 8 #, 80% from 16 # and 100% from 32 #. The addition of 0.5% oil to 2,4-D (amine) enhanced its effect. Repeated applications of herbicides were found to be necessary. 2,4,5-TP was less effective against toyon [Photinia arbutifolia] and coffee-berry [Rhamnus californica] than 2,4-D-2,4,5-T mixture. - D.M.L.S. [O.W.]

548. PEEVY, F.A. (P.O.Box 1192,Alexandria, Louisiana,U.S.A.) Methods of applying herbicides for controlling individual weed trees. Forests & People, 1959, 9,(3), 31,42-3, figs.3,tabs.3.

Results from recent tests in Louisiana show that injection of 2,4,5-T (12-20 lb/100 gal diesel oil) at the base of a tree, using a tree injector, though slightly more expensive than poison girdling, is safer and gives better sprout control. For red [Quercus borealis var. maxima], post [Q. stellata], blackjack [Q. marylandica] and white oaks [Q. alba], holes should be spaced 2 in. apart for trees < 9 in. in diameter and 1 in. apart for trees > 9 in. For species more difficult to kill (sweet gum [Liquidambar styraciflua], black gum [Nyssa sylvatica], elm [Ulmus spp.], willow [Salix spp.], water oak [Quercus nigra], and hickory [Carya spp.]) the corresponding spacing should be 1 in. and 0.5 in. Fenuron was rather more effective than monuron as a soil injection treatment during late winter and spring to kill post and blackjack oaks. They were effective when applied round the base of trees either as a finely ground powder or mixed in water at concentrations of 8 and 16 lb/100 gal. Good kill was obtained with fenuron at 0.5-1 gal/in. of stem diameter. The cost was 0.5-0.75 cent/in. of diameter. - J.W.B. [27(76.3)]

549. OWENS, C.B. (State Univ.,Ohio,U.S.A.) Chemical eradication of woody plants. Diss. Abstr., 1959, 20,(6),1922-4, Microfilm $2.00, pp.80.

Polypropylene glycol butyl ether esters of (1) 2,4-D and (2) 2,4,5-T, and (3) a 50:50 mixture of (1) and (2) were applied in February, March and April at 2, 4, 8, 16 and 32 lb a.e./100 gal fuel oil to various parts of hawthorn (Crataegus spp.) trees. Results indicated that the herbicides did not move downward or laterally to any extent. Best results were obtained with basal treatment of (1) at 16 lb, and (2) and (3) at 8 and 16 lb a.e./100 gal fuel oil. The majority of stumps were killed when AMS was applied in May at 0.5, 1 and 2 lb/gal water. Foliage sprays of (1), (2) and (3) applied in May, June and July caused defoliation of only the treated leaves - indicating no translocation.

The bottom 18 in. of Ailanthus altissima trunks were treated in March with (1), (2) and (3) at 4, 8 and 16 lb a.e./100 gal diesel fuel; all rates eventually caused top kill but sprouting occurred from roots leading from the main trunk after treatment with the lowest rate.

Salix spp. - including S. nigra, S. interior, S. rigida and S. petiolaris:- (1), (2) and (3) applied in May at 2, 4, 8 and 16 lb a.e./100 gal diesel oil to 12 in. above the base of the trunks (as the trees were standing in water 2-12 in. deep at the time), caused death of the trunks, and the leaves died within 10 days; 3 months later extensive sprouting occurred, possibly due to the base of the trunks being submersed at the time of treatment; foliage sprays in June of (1) and (2) at 3 and 6 lb a.e./100 gal water, or of a 10% oil/water emulsion killed S. nigra and S. rigida; only (2) at 3 and 6 lb a.e./100 gal oil/water emulsion, and at 6 lb a.e./100 gal water, and (1) at 6 lb a.e./100 gal oil/water emulsion, were sufficient to prevent resprouting of S. petiolaris and S. interior.

Isopropyl esters of (4) 2,4-D and (5) 2,4,5-T and (6) a mixture of (4) and (5) were applied to Lonicera japonica in March at 1, 2, 4 and 8 lb a.e./100 gal diesel fuel, and /100 gal of a 25% oil/water emulsion, and of (6) 8 lb a.e./100 gal of 100% oil/water emulsion. Best control was given by (5) and (6) at 8 lb a.e./100 gal oil. All treatments caused virtually complete top kill but plants treated with herbicides at 1 and 2 lb a.e./100 gal of all diluents sprouted profusely. Treatments of 8 lb a.e./100 gal oil caused some damage to nearby pines, but this was not lasting. - J.W.B.

Noted

550N. TRUMAN, R. Tree poisoning. Tech. Notes For.Comm.N.S.W., 1959, 11,(4),10-15, figs.3,tabs.1. [O.F.]

OTHER WEEDS AND THEIR CONTROL
See also 483,484,488,489,498, 504,506,513,577.

551. LEASE, A.F. and REA, H.E. (Agric.Exp. Sta.,Texas,U.S.A.) Bindweed (Convolvulus arvensis L.) control and seedling emergence as

affected by tillage, 2,4-D and competitive crops. Agron.J., 1959, 51,(11),672-5, tabs. 3,bibl. 3.

A review of previous work is given. Sweep cultivation 10 or 15 days after emergence gave 99 and 100% control of bindweed on non-cropped areas in 5 years (average of 5.5 annual cultivations). Repeated applications of 2,4-D (ester or amine) gave 97 and 98% control in 5 years (the ester giving significantly better control in the second year). In 5 years, normal winter wheat production (with 3.1 annual cultivations) gave 52% control, but a spring application of 2,4-D 0.5 # increased this to 99%. Fallow-wheat-fallow, with cultivation during the fallow periods 10 days after weed emergence (5.2 average annual cultivations) gave 98% control in 4 years. Sweep cultivation once after wheat harvest, application of 2,4-D 1 # as needed, and sweep cultivation to prepare seedbed gave 99% control in 5 years, but these plots became severely infested with annual grasses. Close-drilled forage sorghum was not a satisfactory competitive crop under these semi-arid conditions.

Bindweed seedling emergence was highest (2.1-2.5 plants/m^2 and 3.6 on normal wheat plots) where competitive crops were grown, intermediate (1.5-1.8) where only tillage was used, and lowest (0.5-0.8) on plots treated only with 2,4-D. Low rainfall one month prior to counts of seedling emergence in 1956 accounted for absence of germination that year. The original bindweed stand on the plots was not found significantly to affect further emergence. Cultural treatment did not significantly affect the number of seed remaining in the soil. - J.W.B.

[O.RE.]

552. GREAT BRITAIN. Control of old-established docks by rotary cultivation. Rotavator Pictorial, 1960, (N.S.25), 9, figs.3.

5-6 Rotavations are claimed to have eradicated docks [Rumex spp.]. It is recommended that the first be carried out 0.5 in. deep and that for succeeding rotavations the depth should be increased by 1 in. till 5-6 in. is reached. The rotavations should be carried out when there is 2 in. of new growth. It is stated that broad leaved docks [R. obtusifolius] are only able to put out new growth from the top 2.5-3 in. of its roots and curled docks [R. crispus] from the upper 1-1.5 in.; the remainder of the root is said to act merely as a food store. - L.K.

[402(42)]

553. DERSCHEID, L.A. and SCHULTZ, R.E. (S.Dak.State Coll.,S.Dak.,U.S.A.) Achene development of Canada thistle and perennial sowthistle. Weeds, 1960, 8,(1),55-62, tabs.3,bibl.12.

A study of achene development of Cirsium arvense and Sonchus uliginosus showed:- in greenhouse experiments, pollination by honey bees was much more effective than air currents. Heads which were pollinated with their own pollen or with pollen from other heads of the same plant did not produce many seeds, and those which did develop were not viable. Flowers pollinated from other plants produced the normal number of viable seeds. Flowers of S. uliginosus must be 6-7 days old, and those of C. arvense 8-10 days old before fruits are mature enough to germinate. To prevent production of viable seed it was necessary to mow before heads had been open 8-9 days for Sonchus and 10-11 days for Cirsium. There was no indication that development of seed continued on plants after mowing. The viability of seed from both species was reduced when stored in the head for a year or more. - M.E.L.

[O.W.]

554. DERSCHEID, L.A., WALLACE, K.E. and NASH, R.L. (Agric.Exp.Sta.,S.Dak.,U.S.A.) Leafy spurge control with cultivation, cropping and chemicals. Weeds, 1960, 8, (1),115-27, tabs.3,bibl.4.

Describes further progress on work previously reported in Weed Abstracts 5,923. May applications of 2,3,6-TBA 4-6 # on leafy spurge (Euphorbia esula) 6-12 in. tall, followed by ploughing 10 days later, seeding to maize and 3 cultivations + 2,4-D (ethyl or butoxyethanol ester) 0.33 # before the second cultivation gave 80-90% control of spurge without crop damage. August, 1955 applications of 2,3,6-TBA 6 # to stubble (previously treated at 5-leaf stage with 2,4-D (ethyl ester) 0.33 #) followed by ploughing killed 75-80% leafy spurge.

Yield of oats planted in 1956 was reduced by 15%; 1957 oats were unaffected. Control of leafy spurge by amitrol + 2,3,6-TBA 4-8 # applied in (1) May was 70-80% without crop damage, (2) August was <30% and 60-75% when 2,4-D (ethyl ester) 0.33 # had been applied to the grain. May applications of 2,4,5-TP + amitrol + 2,3,6-TBA 10-20 # did not control spurge, damaged crop and reduced the following year's yield by 30%; August applications with 2,4-D treatment of grain gave 82% spurge kill, and without 2,4-D gave <40% kill. - M.E.L.

[O.W.]

555. SIMONS, J.N., ORSENIGO, J.R. and STALL, R.E. (Everglades Exp.Sta.,Belle Glade,Fla,U.S.A.) Potato virus Y in peppers and tomatoes: history and importance on the Lower East Coast; weed control and bacterial spot relationships. Mimeo.Rep.Everglades Sta.,Fla, 1959, 59-31, pp.11, bibl.1.

Details of the history and spread of this virus, and the following suggested methods of control are discussed in the first section of this report:- eliminate weed hosts; use non-susceptible barrier crops around the field; avoid planting spring crops next to diseased fall crops; and maintain plants free from other diseases.

Section II lists the following recommended methods of controlling the host plants Solanum gracile, S. nigrum and Physalis sp. (also Melothria pendula the host plant of watermelon mosaic virus):- off season control (ditchbanks only) - flame treatment, 2,4-D + 2,4,5-T each at 0.75-1.00 # a.e., or 2,4,5-T 1.5 # a.e.; crop season - flame treatment, AMS 50 #/ 100 gal water applied as a foliage wetting spray, or PCP-fortified diesel oil emulsion.

Section III discusses the source, spread and control of bacterial spot. - J.W.B. [30(75.9)]

556. PHILLIPS, W.M. (Agric.Exp.Sta., Hays,Kansas,U.S.A.) The chloro-substituted benzoic acids for control of field bindweed. Weeds, 1960, 8,(1),63-70.

The control of Convolvulus arvensis on Crete silty clay loam was evaluated 12-17 months after applications of 2,3,6-TBA PBA (a mixture of isomers of di-, tri- and tetra-chlorobenzoic acids) and TBA (50% 2,3,5- + 20% 2,3,6- + other isomers of trichlorobenzoic acid) at rates of 8-48 # in 40 gal. The effectiveness of 2,3,6-TBA > TBA > PBA. Control by 2,3,6-TBA 15-20 # was adequate, equal to that given by sodium chlorate 960 #, and less dependent on rainfall. Comparison of 6 formulations of 2,3,6-TBA 16 # in June, July and October, showed the sodium salt, emulsifiable oil and potassium salt were more effective than the lithium salt or oil soluble formulations. Spray applications of PBA gave top kill within 1 week. Granular PBA gave complete top kill after 30 days.

C. arvensis and Kochia scoparia exhibited symptoms of growth regulator effects on plots treated 3 years previously with 2,3,6-TBA(sodium) 5 #. Under rainy conditions weedy grasses such as Schedonnardus paniculatus and Digitaria sp. and other shallow-rooted plants began growing on plots a few months after treatment. - M.E.L. [O.W.]

557. BONDARENKO, D.D. (State Univ.,Ohio, U.S.A.) Kill poison ivy. Ext.Leafl.Ohio agric.Coll., 1959, 83,pp.8.

General notes on identification, poisoning and control (using 2,4-D + 2,4,5-T, amitrol, and AMS) of poison ivy [Rhus toxicodendron] are given. - J.W.B. [47(77.1)]

558. NEW ZEALAND. Farm inquiry service. Service, 1959, 4,(2),22-3.

Includes the following information:- mecoprop gives good control of Pearlwort (Sagina procumbens), mouse-eared chickweed [Cerastium glomeratum], plantains [Plantago spp.], and hawkbits (Hydrocotyle spp.); to control foxglove [Digitalis purpurea], apply 1 part Weedar MCP 4 (MCPA) to 80 parts of water as an overall spray before the main flowering period; to control Iris foetedissima, spray or spot-treat with 1 part of Weedone 57 (2,4-D) to 60 parts diesel oil. - J.W.B. [O.W.]

559. SULIMA, A.G. [Strengthen the fight against Polygonum.] Kolgospnik Ukraini, 1958, (12),22-3, (Ukrainian).

Mainly with reference to cultural methods. - From Ref.Zh.Biol., 1959, 92846. - L.K.

560. UNITED STATES. Crop protection. Weeds. Crops & Soils, 1960, 12,(5),24.

Control of broadleaf weeds in rice crops. R. Nester of the Arkansas Experiment Station has found that 2,4-D (amine) will give good control of ducksalad and coffee weed [? Daubentonia texana] at probably the lowest cost, but 2,4,5-T (amine) will give better control of curly indigo [Aeschynomene virginica]. Application should be made 7-9 weeks after rice emergence to avoid injury.

Broomweed causes abortion in stock. In Western Texas abortions have occurred regularly in 10-60% of cattle grazing broomweed [Gutierrezia microcephala]. In feeding trials one cow aborted after eating 37 lb of the weed and died; another ate 525 lb before she aborted. Similar trials with pregnant ewes, Spanish and Angora goats, and gilts and sows showed the same abortion tendency.

Proper cutting insures good mesquite control. In New Mexico 8565 ac of mesquite [Prosopis juliflora] were grubbed at an average cost of 44 cents/ac in 1958 and of 67 cents/ac in 1959. Grubbing is less expensive and more

certain than chemical control as it gives a sure kill if the root is cut below the budding zone (ca. 4 in. below ground level) whereas it requires 3 years to determine the effect of chemicals. - D.M.L.S. [O.W.]

561. PARAKH, J.S. and SCHREIBER, M.M. (Dep.Agron.,New York State Coll.Agric., Ithaca,N.Y.,U.S.A.) Control of bedstraw (Galium mollugo) with alpha-phenoxypropionic acid derivatives. Weeds, 1960, 8, (1),94-106, figs.5,tabs.6,bibl.23.

In greenhouse experiments 100% foliage and root kill of bedstraw (Galium mollugo) was given by 2,4-DP (amine) 2.5 #, mecoprop (amine) 7.5 #, 2,4,5-TP (amine) 7.5 #, 2,4,5-TP (propylene glycol butyl ether ester) 5 # and 2,4,5-TP (iso-octyl ester) 2.5 #. Foliage kill of birdsfoot trefoil (Lotus corniculatus) by the esters was severe and the high rate of amines 7.5 # injured the foliage; esters at 5 # and 10 # caused root kill.

In field trials in autumn (November) 2,4,5-TP (propylene glycol butyl ether, iso-octyl and butoxyethanol esters) 1-2 # gave better bedstraw control with less injury to birdsfoot trefoil than 2,4,5-TP, mecoprop and 2,4-DP (amine salts). Significant reduction in yield of birdsfoot trefoil occurred at the first (June) but not at later cuttings. Percentage of broadleaf weeds increased, particularly at the higher herbicidal rates 4-8 #.

Less injury to birdsfoot trefoil but with the same degree of bedstraw control, occurred with spring rather than summer or autumn applications of 2,4,5-TP (esters).

High rates of the esters in spring reduced the number of broadleaf weeds present, with an increase in more desirable forage grasses. Bedstraw plants, surviving the initial overall applications, were eradicated by spot-treatments of 2,4,5-TP ester 3 #. - M.E.L. [O.W.]

562. RYDER, G.J. and BONDARENKO, D.D. (State Univ.,Ohio,U.S.A.) Wild garlic control. Ext.Leafl.Ohio State Univ., (n.d.), M4-161, figs.

Soft- and hard-shell bulbs, aerial bulblets, and the life-cycle of wild garlic [Allium canadense] are illustrated. Tops can be killed and the formation of reproductive bodies prevented by 2,4-D (ester) 2-3 # a.e. in about 10 gal water; ploughing to cover the tops may effectively substitute for 2,4-D. Suggested methods of wild garlic control are as follows:- (1) in permanent pasture or long-lay meadows - 2,4-D (ester) in November and March; (2) in maize, soybeans and other summer crops - apply 2,4-D or plough in October-November, or in March-early April, or plant crop and cultivate as usual; (3) in wheat - 2,4-D 2 # in March; (4) in non-crop areas - 2,4-D in November and March.

Wild onion [Allium spp.] can also be controlled by the above methods. - J.W.B. [46(77.1)]

563. UNITED STATES. Noxious weed warning told by agronomist. Colo.State Univ. News, 1959, 13,(12),11.

The Colorado Commission of Agriculture has ruled that Sorghum almum shall be "considered" noxious because of the difficulty in distinguishing the seed from that of Johnson grass [Sorghum halepense]. Tests have shown it not to be winter hardy in Colorado and, though drought-resistant, to be inferior to recommended Sudan grass varieties. - D.M.L.S. [42(78.8)]

564. * UNITED STATES. Johnson grass control: a farm and county program. Progr.Rep.Ky agric.Exp.Sta., 1959, 78, pp.16.

565. DANIEL, W.H. (Purdue Univ.,Lafayette, Indiana,U.S.A.) Weedy grass control with arsenicals. Midwest Turf News & Res., 1959, 22,pp.2, tabs.2.

Includes the information that repeated tests on crabgrass [Digitaria spp.] control, showed 5 arsenical formulations to be more effective than 4 chlordane formulations. - J.W.B. [46(77.2)]

566. TAS, R.N. (I.N.E.A.C.,Yangambi). Essais de lutte contre Paspalum conjugatum Berg. dans les chemins de plantation. [Trials for the control of P. conjugatum Berg. in plantation paths.] Proc.Afr. Weed Control Conf.1958, 1960, 164-78, (F.f.e.).

Control by hand weeding is very costly in labour but if done every 6 weeks P. conjugatum can be eradicated provided there is no reinfestation.

In preliminary trials with herbicides, the following were unsatisfactory:- dalapon 6.8 kg/ha, gas oil 600 l/ha, water emulsions (containing 30% gas oil + 1.5% PCP) at 180 l/ha gas oil and 9 kg/ha PCP, TCA 19.65 kg/ha, simazine 2.5 kg/ha, diuron 4 and 8 kg/ha, arsenic trioxide 39.6 kg/ha and sodium arsenite 6.8 kg/ha + dalapon 3.4 kg/ha. The best and most economic results were obtained with sodium arsenite alone at 6.8-34 kg/ha and in a further trial it was applied at 6.8 and

10.2 kg/ha monthly, at 13.6 kg/ha every 6 weeks and bi-monthly, at 20.4 kg/ha bi- and tri-monthly, at 27.2 and 34 kg/ha tri-monthly and at 68 kg/ha every 6 months. The most effective treatments were: (1) 10.2 kg/ha applied monthly, (2) 6.8 kg/ha monthly and (3) 13.6 kg/ha every 6 weeks in that order, and the most economic were (2), (3) and 68 kg/ha twice a year, but the author thinks that a relatively heavy initial rate of 50-100 kg/ha followed by low rates of 10-15 kg/ha would get the best results.

Pueraria javanica when established competes successfully with P. conjugatum, dalapon 27.2 or TCA 62.8 kg/ha applied at time of sowing P. javanica were effective in controlling grasses and securing establishment. Lower rates (dalapon 13.6 and TCA 31.4 kg/ha) were ineffectual, and applications 8 days after sowing injured P. javanica.

Sodium arsenite 6.8 kg/ha + dalapon 3.4 kg/ha and diuron 8 kg/ha eliminated Cyathula achyranthoides and partially controlled Synedrella nodiflora and Ageratum conyzoides. Pteridium aquilinum was not controlled by sodium arsenite 68 kg/ha applied 3 times at intervals of 6 months. It is advised that sodium arsenite should not be applied near coffee trees; residues of 0.8-1.2 p.p.m. have been found in the ripe fruit of trees on the edge of sprayed plots. Plant successions after spraying with sodium arsenite are discussed briefly: suppression of P. conjugatum was always followed by invasion of Eleusine indica which is resistant owing to its stalk structure. After termination of the spraying P. conjugatum again became dominant. - D.M.L.S.

[O.W.]

567. SERNA, E.H. Control de malezas en areas no cultivadas. [Weed control in uncultivated areas.] Agric.trop.,Bogota, 1959, 15,(7),436-45.

This paper is concerned with the control of weeds along railways, roads, in canals and pools, on airports and other uncultivated areas. In canals and pools, grass weeds were controlled, after the water had been drained, by applying Dowpon at 20 kg/ha. Effective control of broad-leaved weeds was obtained by treatment with a low volatile ester of 2,4-D at 5-10 l, and ACPM [MCPA?] 50 l,in water, so as to apply a total of 935 l/ha. Good control of Eichhornia crassipes was obtained by treatment with Esteron 21 (containing 2 lb of low volatile ester of 2,4-D + 1 lb of low volatile ester of 2,4,5-T/gal) at a rate of 1 gal and 5 gal of ACPM, in water, making a total of 100 gal/ha. - Field Crop Abstr., 13,435.

568. MORGAN, O.D. (Agric.Exp.Sta.,Univ., Maryland,U.S.A.) Chemical control of algae and other nuisance growths on greenhouse benches, pots, and potting soil. Plant Dis. Reptr, 1959, 43,(6),660-3, figs.2,tabs.2, bibl.8.

Chemical 5400 (alpha, alpha-trithiobis (N-dimethylthioformamide)) (1) and dichlone (2) were each applied at 2 lb 50% wettable powder/100 gal, as a drench to sand in 2 greenhouse benches (approx. 0.32 g/ft^2), twice every winter for 3 years for (1), and for 1 year for (2). (1) gave almost complete control of all nuisance growths for 2.5-3 months after application, and (2) for 2 months. Neither chemical harmed the heating coils in the benches.

To determine the effectiveness of (1) and (2) for control of algae and moss in pots, 2 in. pots and sand were steam sterilized, the pots dipped in suspensions of the 2 chemicals, filled with sand, and an algal suspension poured over the sand. After 1 week, algae had overgrown the sand and 25 ml of a suspension of (1) or (2) was poured over the sand. Results showed that (1) at 800 and 1200 p.p.m. controlled algae for 18 weeks, whereas (2) at the same concentration gave only partial control for this period. Six weeks after treatment with (1) or (2) (each at 2 lb 50% wettable powder) moss growth was controlled 86% and 32.5% respectively. At 1 lb/100 gal, (1) gave 50% control and (2) no control. After 6 weeks moss started to grow again, but it can be controlled effectively by (1) if it is applied to the soil before moss becomes established.

Flats filled with steamed soil and treated with (1) at 2 lb 50% wettable powder/100 gal remained free of fungus growths, and those present at the time of treatment (Pyronema sp., Neurospora sp. and Trichoderma sp.) soon disappeared. - J.W.B. [93(75.2)]

569. ZAHARIADI, C. [Advances and promising treatments in chemical weed control.] Int. agric.J., 1958, (4),91-9, (Russ.)

With reference to Rumania. - From Ref.Zh. Biol., 1959, 101581. - L.K.

Noted

570N. MOISEEV, A.H. [The effectiveness of herbicides for the control of dodder in

lucerne.] Bull.Kirg.Inst.Zemel., 1958, (3), 56-9, (Russ.)
With reference to the use of DNOC, ammonium sulphate, diesel oil and coal tar derivatives for the control of dodder [Cuscuta spp.]. - From Ref.Zh.Biol., 1960, 1681. - L.K.

571N. MILLER, J.H. (U.S. Cotton Field Sta., Shafter,Calif.,U.S.A.) Russian knapweed control. Proc.Calif.Weed Conf., 1959, 11, 65-9.

CHEMISTRY, PHYSICS, TOXICOLOGY RESIDUES AND SOILS

See also 540,586.

572. BROWN, W.BURNS. Fumigation with methyl bromide under gas-proof sheets. D.S.I.R.Pest Infest.Res.Bull., 1959, 1,pp.44, (2nd edition), figs.28,tabs.5,bibl.24.
Includes reference to the following:- physical and chemical properties of methyl bromide; detecting it with a halide lamp; equipment, including gas-proof sheets, piping and nozzles, cylinders and cylinder fittings; and transfer of methyl bromide from large to small cylinders. - J.W.B. [L.AM.]

573. FADRUS, H. Fotometricke stanoveni dinitro-o-Kresolu. [Photometric determination of DNOC.] Sborn.csl.akad.zemedel.ved.rostl. vyr., 1958, 4, 1163-5, (Czechoslovakian,russ. g.)
A new, simple, speedy and sensitive method for the determination of DNOC is proposed, based on the photometric determination of a coloured product formed on the reduction of DNOC. - Z.PflKrankh., 66,674.

574. KREWSON, C.F., SAGGESE, E.J. and DRAKE, T.F. (A.R.S.,Dep.Agric.,Philadelphia 18,Pennsylvania,U.S.A.) Chemistry of some amino acid derivatives of phenoxyalkylbutyric acids. Weeds, 1960, 8,(1),107-14, tabs.2, bibl.11.
Describes the synthesis and properties of amino acid derivatives of 2,4-DB and MCPB with a view to investigating the relation of their structural configuration to specificity, mode of action and herbicidal effectiveness.
Schotten-Baumann coupling of the 2,4-DB and MCPB acyl chlorides was successful with the D-, L- and DL- optical forms of alanine, leucine, methionine, phenylalanine, threonine and tryptophane. The method was also used to prepare the derivatives of L-cystine with 2,4-DB and DL-aspartic acid with MCPB. - M.E.L. [O.W.]

575. GALSTON, A.W. and KAUR, R. (Dep. Bot.,Josiah Willard Gibbs Res.Lab.,Yale Univ.,U.S.A.) An effect of auxins on the heat coagulability of the proteins of growing plant cells. Proc.nat.Acad.Sci. Wash., 1959, 45,(11),1587-90, tabs.3, bibl.13.
Auxins [2,4-D, indoleacetic acid (IAA), 2,3,5-triiodobenzoic acid, and phenylacetic acid] induced a decrease in the heat coagulability of growing pea stem cells, the greatest reduction being caused by 2,4-D and IAA. The total protein content was not changed. The effect was produced mainly in the non-particulate phase of the cytoplasm. The auxin analog p-chlorophenoxyisobutyric acid produced no change in the protein precipitated. There was an increasing effect on the proteins with increasing concentration of 2,4-D even where the growth optimum may have been surpassed. 2,4-D was practically inactive when applied in vitro to control proteins. - Partly from Authors' Summary (modified).- D.M.L.S. [O.R.]

576. LEOPOLD, A.C., van SCHAIK, P. and NEAL, M. (Agric.Exp.Sta.,Lafayette,Indiana,U.S.A.) Molecular structure and herbicide adsorption. Weeds, 1960, 8, (1),48-54, figs.2,tabs.3,bibl.9.
The adsorption onto carbon of monuron, chlorpropham, propham, NPA, 2,3,6-TBA (sodium), TCA, phenoxyacetic acid and 17 chlorinated phenoxyacetic acids was determined. It was found that with the phenoxyacetic series there was a very marked negative correlation between adsorption and solubility in water and with the other compounds that those least soluble tended to be the most strongly adsorbed. In the phenoxyacetic series the more active compounds were of intermediate solubility (and also of intermediate adsorption). - L.K. [O.W.]

577. MOSZEW, J. and WOJCIECHOWSKI, J. (Univ.Krakow,Poland). Chloronitro derivatives of 1-naphthoxyacetic acid. Roczniki Chem., 1959, 33,359-63, (g.).
4-Nitronaphthoxyacetic acid (I) (5 g) in 100 g glacial AcOH reacted with 10 g SO_2Cl_2 to yield 3.5 g 2-chloro derivative

(II) of (I), m.190°; Me ester m 112°; Et ester m. 82°; amide m.207°. The position 2 of the Cl atom was proved by reduction of (II) to the 4-amino derivative decomposing above 230° (Me ester m.188°; Et ester m.181°; amide m.133°; N-acetyl derivative m.225°), and transformation into the diazo compound, which on heating in alcohol gave 2-chloro-1-naphthoxyacetic acid. (II) inhibits the development of charlock and weakly affects linseed. - Chem.Abstr., 53,18921e.

578. THUILLIER, G., RUMPF, P. and THUILLIER, J. (C.N.R.S.,Bellevue,France). Preparation et etude pharmacologique preliminaire des esters dimethylaminoethyliques de divers acides agissant comme regulateurs de croissance de vegetaux. [The preparation and preliminary pharmacological study of dimethylaminoethyl esters of various acids which act as plant growth regulators.] C.R.Acad.Sci.Paris, 1959, 249,(20),2081-3, (F.), tabs.2,bibl.4.

The hydrochlorides of the β-dimethylaminoethanol esters of a number of plant growth regulators were found to have a stimulatory effect on the nervous system [of man?]; in particular they potentiated the central action of adrenalin. The parent acids were:- 4-CPA, 2,4-D, phenoxyacetic acid, MCPA, 4-fluorophenoxyacetic acid, naphthylacetic acid, 1-and 2-naphthoxyacetic acids, indolylacetic acid and phenylpropionic acid. - L.K. [O.R.]

579. SHILLINGER, Yu.I. and KUKEL, Yu.P. Hygienic evaluation of cereals from fields treated with herbicide butyl dichlorophenoxyacetate. Gigiena i Sanit, 1959, 24,(5), 25-31.

Oats which had been treated with 0.4 kg/ha 2,4-D (butyl) showed no effect on the blood picture, the catalase, and peroxidase concentrations, or visible changes in the internal organs of mice, rats, and rabbits after 10 months feeding. No odour or taste was detectable in the oats. The effects of toxic doses (37 mg/kg rat daily for 10 months) are described. - Chem.Abstr., 53, 17409d.

580. CRAFTS, A.S. and DREVER, H. (Dep. Bot.,Univ.,Davis,Calif.,U.S.A.) Experiments with herbicides in soils. Weeds, 1960,(8), (1),12-18, tabs.2,bibl.13.

Describes comparative toxicity studies of herbicides in 3 soils, Yolo fine sandy loam (YFSL) and Yolo clay loam (YCL), recent alluvial soils with a high montmorillonite content derived from sandstone and shales, and Egbert loam (EL), a mixture of clay and organic matter derived from peat. The indicator plant was Kansta oats. The concentrations of herbicides used were: 0.1, 0.2, 0.4, 0.8, 1.6 up to 19.2 p.p.m. by weight of the molecular equivalent of the herbicide in 500 g air dry soil which was then mixed with water to bring the soil to field capacity. The relative initial toxicities were fenuron and monuron > chlorpropham > dalapon, and TCA > CMIPC (6-methylchlorpropham) > 2,3,6-TBA.

Rate of inactivation of the herbicides was TCA > propham > dalapon > chlorpropham > CMIPC > 2,3,6-TBA > fenuron > monuron.

The rate of inactivation varied with soil type, thus for TCA, chlorpropham and propham EL > YCL and YFSL; dalapon, YCL > EL > YFSL; CMIPC, EL > YCL > YFSL; fenuron, YCL > YFSL > EL. The rates of inactivation of monuron and 2,3,6-TBA showed little variation with soil type. - M.E.L. [O.W.]

581. JAMES, B.L. (State Univ.,Ohio,U.S.A.) Absorption and translocation of maleic hydrazide in Taxus media 'Brown' as determined with a radioisotope. Diss.Abstr., 1959, 20,(6),1944, Microfilm $2.00, pp.62.

Absorption was studied at 97, 57 and 35% relative humidity levels and at 2 arbitrary soil moisture levels, 'wet' and 'dry'. Less MH was absorbed as relative humidity was reduced from 97 to 35%, but the effect of a wetting agent was more striking at the 2 lower levels. Less MH was absorbed by Taxus media growing on dry soil, but at 97% relative humidity the effect of soil moisture was less striking than at the lower humidities. MH was translocated basipetally not not acropetally and it was deduced that MH was translocated in the phloem of Taxus. It was found to accumulate in necrotic tissue, younger leaves and terminal buds of treated branches, phloem tissue and throughout the root system, especially the root tips. MH apparently diffused through dead tissue more readily than it was translocated through live tissue. The amount of MH absorbed by Taxus was small compared with amounts reported for several herbaceous plants under similar conditions; structure and thickness of the cuticle are suggested as a reason for this. - J.W.B.

582. FERNANDES, C.S. Action of 2,4-D and TCA on nitrification of ammonia. Univ.rural Pernambuco, Comun.tech., 1957, 4,pp.14.

In a 200-ml Erlenmeyer flask containing 19 ml of Winogradsky medium, 1 ml of a 1:2 suspension of soil in water was added and the mixture incubated at 28°. Uninoculated medium was used as control. The solution without $(NH_4)_2SO_4$ was placed in a vessel

calibrated to supply 19-ml portions and was sterilized at 127° for 15 minutes. Then an unstated amount of $(NH_4)_2SO_4$ dissolved in H_2O was sterilized and added to the previous solution. Inoculations of 2, 4, 8 and 18 p.p.m. 2,4-D and of 10, 20, 40 and 60 p.p.m. TCA were made, and the nitrate N was determined by the Griess-Bray technique without Zn by using the author's semiquant. method. The evidence pointed to no significant deterrent effect on bacterial NH_3 nitrification.- Chem.Abstr., 53,19283b.

APPLICATION AND MACHINERY

See also 483.

583. FRYER, J.D. (Univ.Dep.Agric.,Oxford, England). Some principles underlying the field testing of selective herbicides. Proc. Afr.Weed Control Conf.1958, 1960, 241-51, figs.8,bibl.1.
Illustrations of various types of sprayers are included. - D.M.L.S. [O.W.]

584. HEIKES, P.E. (State Coll.,Bozeman, Montana,U.S.A.) Weed control equipment. Ext.Bull.Mont.State Coll., 1959, 300,pp.24, figs.17,tabs.6.
Consists of sections on seed cleaning, cultivating, and chemical spraying equipment (including ground and aerial spraying). - J.W.B. [11(78.6)]

PHYSIOLOGY, MORPHOLOGY AND ANATOMY

See also 485,494,581.

585. MALISAUSKIENE, V. Herbicido 2,4-D poveikis avizu fiziologiniams procesams ir derliui. [The effect of the herbicide 2,4-D on the physiological processes of oats and on its yield.] LietTSR Mokslu Akad.darbai, Tp.AH Lit SSR, 1959, B1,(17),107-24, (Lithuanian,russ.)
2,4-D (sodium) 1 kg/ha interfered with the physiological processes of treated oats (respiration,photosynthesis and transpiration) and decreased the amount of chlorophyll. There was a temporary stimulatory effect on respiration followed by inhibition, an inhibitory effect on photosynthesis, while transpiration was increased to 1.5 to 2 times that of the control. The interference lasted 10-12 days. - From Ref.Zh.Biol., 1960, 1656. - L.K.

586. KREWSON, C.F., CARMICHAEL, J.F., SCHAFFER, P.S., SMALE, B.C. and MITCHELL, J.W. (U.S.Dep.Agric.,Philadelphia, 18, Pennsylvania,U.S.A.) Preparation and plant growth-regulating activity of crude protein hydrolyzate derivatives of DL-2-(2,4-dichlorophenoxy)propionic acid. J.Agric. Fd Chem., 1959, 7,(12),837-41, tabs.3, bibl.8.
The combination of 2,4-DP with various inexpensive protein hydrolysates is described. The general growth responses of bean, sunflower, and barley were less than to the parent acid, while those of cucumber and maize were greater. - From Authors' Abstract. - L.K. [O.W.]

587. CRAFTS, A.S. (Univ.,Davis,Calif., U.S.A.) Evidence for hydrolysis of esters of 2,4-D during absorption by plants. Weeds, 1960, 8,(1),19-25, figs.4,bibl.6.
Barley was treated with carboxyl labelled 2,4-D and carboxyl or alcohol labelled 2,4-D (isopropyl). In plants treated with alcohol labelled 2,4-D, autoradiographs showed movement to be only acropetal; where carboxyl labelled 2,4-D was used movement was also basipetal and was somewhat greater with the acid than the ester.- L.K. [O.W.]

588. McWHORTER, C.G. and PORTER, W.K. (Delta Branch Exp.Sta.,Stoneville,Mississippi,U.S.A.) Some effects of amitrol on the respiratory activities of Zea mays. Weeds, 1960, 8,(1),29-38, figs.5,bibl.9.
Whether added to the nutrient medium or infiltrated into leaves under vacuum, amitrol had little effect on the respiration of green leaves, whereas that of chlorotic tissue (induced by amitrol) was increased. Ascorbate oxidation showed little change with age (up to 11 days); while catechol oxidation, from being about 3 times that of ascorbate up to 7 days, fell to slightly below it, at 9 days. Shading increased catechol oxidation of chlorotic but not of green tissue, but decreased ascorbate oxidation. At 20°C ascorbate and catechol oxidation of chlorotic tissue exceeded that of the controls, whereas at 30-35°C both were less than the controls. - L.K. [O.W.]

589. MASSINI, P. (Philips Res.Lab.,Eindhoven,Netherlands). Synthesis of 3-amino-1,2,4-triazolyl alanine from 3-amino-1,2,4-triazole in plants. Biochim.biophys.Acta, 1959, 36,(2),548-9, bibl.6.
Cuttings of French bean were allowed to take up amitrol for 5-7 days in the light. Analysis of the extract suggested the presence of 3-amino-1,2,4-triazolyl alanine. The compound was not formed in plants kept in the dark. - L.K. [O.R.]

590. HERRETT, R.A. (Univ.,Minnesota, U.S.A.) Studies on the absorption, translocation and metabolism of 3-amino-1,2,4-triazole in perennial plants. Diss.Abstr., 1959, 20,(6),2002, Microfilm $2.00, pp.130.
Absorption of amitrol drops applied to leaves of both thistle and bindweed was found to occur rapidly from an aqueous solution, this uptake being primarily cuticular; however, uptake was much slower for bindweed than thistle during comparable times following drying of the drop. A lag in the transport of amitrol from the treated leaf into the stem was observed. Studies of the general changes in plant metabolism showed an increase in the content of free reducing sugars in the discoloured leaves while the content of invert sugar was decreased. Respiration was stimulated and catalase activity was inhibited immediately following the introduction of amitrol, indicating that the chemical was effective on these systems without undergoing any metabolic changes. The rate of amitrol metabolism within bindweed was more rapid than in thistle; this difference in sensitivity was concluded to be a result of major differences in absorption and metabolism of this compound. - J.W.B.

591. FREDERICK, J.F. and GENTILE, A.C. (Dodge Chem.Co.,New York,U.S.A.) The effect of 3-amino-1,2,4-triazole on phosphorylase of Oscillatoria princeps. Arch.Biochem., 1960, 86,(1),30-3, figs.3,tabs.2,bibl.16.
The inhibitory effect of amitrol on O. princeps phosphorylase is probably due to the chelation by amitrol of the essential metal required by this enzyme. The inhibition can be reversed by the addition of manganous or ferric ions only in the proper concentrations for forming the bivalent and trivalent chelates. Evidence is presented for a 3:1 structure of the ferric chelate of amitrol. - From Authors' Summary. - L.K. [O.R.]

592. CRAFTS, A.S. (Univ.,Davis,Calif.,U.S.A.) The uptake and distribution of herbicides. Proc.Afr.Weed Control Conf.,1958,1960, 252-6.
An account mainly of work done at Oxford with labelled tracers of 2,4-D, amitrol, MH, monuron and dalapon, and also in the U.S.A., with EPTC. The roles of the source and the sink in the movement of 2,4-D in plants is also discussed. - D.M.L.S. [O.W.]

593. ENGLET, J. Untersuchungen über die Beeinflussung physiologischer Reaktionen durch erhöhten Aneuringehalt. [Investigations on the effect of increased aneurin content on physiological reactions.] Biol.Zbl., 1958, 77,580-607, (G.), bibl.52.
An investigation was made of the effect of increased aneurin content on the physiology of older plants of Sinapis arvensis (susceptible to growth regulators), Solanum nigrum (resistant), Chenopodium album (moderately susceptible) and Capsella bursa-pastoris (moderately resistant). Aneurin was applied to the roots and was found to be accumulated more by Sinapis than by Solanum. It changed the water uptake but not the water content of plants. The intensity of respiration and the apparent assimilation were increased in Solanum more than in Sinapis while there was a varying effect on root growth; no change in pigment content was observed. The relative weight was unaffected. The order of the plants' susceptibility to aneurin was not the same as to growth regulators of the 2,4-D type. - Chem.Zbl., 130,16054.

594. PREVOST, M., TYSSET, C. and VACHER, B. (Fort d'Auberville/Seine,France). [The effect of monuron on the mitochondria of Allium cepa. Phase contrast investigations.] Bull.Microscopie appl., 1958, 8,101-4.
The application of an aqueous suspension of monuron (1:1000) caused swelling of, and vesicle formation in, the mitochondria of the inner epidermis of Allium cepa when viewed at x2000 magnification (phase contrast, longer illuminations injurious). Particles were observed in the mitochondria which could be ascribed to the phytotoxic action of monuron. - Chem.Zbl., 130,15730.

595. MORELAND, D.E. and HILL, K.L. (State Coll.,Raleigh,N.C.,U.S.A.) The action of alkyl N-phenylcarbamates on the photolytic activity of isolated chloroplasts. J.Agric. Fd Chem., 1959, 7,(12),832-7, figs.3,tabs.4, bibl.29.

Inhibition of the photolytic activity of isolated Brassica chloroplasts by various alkyl N-phenylcarbamates was investigated. All compounds which strongly inhibited the Hill Reaction possessed a free imino hydrogen atom. Substitution of this hydrogen by an alkyl or aryl group resulted in a decrease in, or loss of, inhibitory activity (which it is thought may be due to the prevention of polymerisation). Relative activity against the Hill Reaction was not always paralleled by herbicidal activity. - Partly from Authors' Abstract. - L.K. [O.W.]

596. MIWA, T., SAITO, Y. and YAMAMOTO, S. The effect of plant growth regulators on the interspecific and intergeneric pollinations in some plants of Solanaceae. Bull.Fac.Agric. Univ.Miyazaki, 1958, 4,(1),153-65, (Jap.e.)
The effect of NAA [naphthylacetic acid] and 2,4-D on fruiting of those species capable of inter-specific and intergeneric pollination was included in the study. - From Biol.Abstr., 35,(2),5376. - D.M.L.S.

597. SUYAMA, I. Influence of maleic hydrazide spraying on the chemical contents of leaf tobacco. Nippon Saku.Gak.Kiji, 1956, 24,156.
Spraying with MH decreased the nicotine and increased the carbohydrate content of the leaves. - From Chem.Abstr., 53,19274f. - L.K.

598. TAMAKI, K. [The effect of maleic hydrazide early foliage spray on the growth behaviour and the variations of chemical components of potato plants.] Tech.Bull.Fac. Agric.,Kagawa, 1958, 9,(3),119-25, (Jap.e.), bibl.33.
Growth inhibition was observed 10 days after spraying potato plants with MH. Later on plants became dwarfed and thick. Tuber growth was inhibited because carbohydrates were not translocated to tubers after flowering. The nitrogen content of tops and tubers decreased slowly, instead of rapidly, as growth proceeded. - Field Crop Abstr., 13,298.

599. NAGAI, Y., SAITO, J. and FUNAHASHI, S. Growth inhibition of mung bean seedlings by maleic hydrazide. Nippon Nogei-Kagaku Kaishi, 1958, 32,899-903.
Effects of MH on the growth and metabolism of mung bean seedlings were studied. Mung bean seedlings were germinated in the presence of 100 p.p.m. MH. The length of MH-treated seedlings was about 1/3 of the control on the third day, but the weight of the dry matter was almost that of the control. The distribution of the dry matter and protein N indicated that MH inhibited the transportation of materials from cotyledon to the other parts of the plant body. A very slight decrease in the rate of the accumulation of fructose and ascorbic acid was observed. The accumulation of arginine was depressed by about 20% in the presence of MH. The rate of O consumption of the MH-treated seedlings was about half that of the control when calculated per seedling. Any effect of MH on the rate of O consumption of mitochondria was observed either in the mitochondria prepared from MH-treated seedlings or in normal mitochondria incubated with MH. - Chem.Abstr., 53,18194d.

600. MITCHELL, J.W., SMALE, B.C. and PRESTON, W.H. (U.S.Dep.Agric.,Beltsville, Maryland,U.S.A.) New plant regulators that exude from roots. J.Agric.Fd Chem., 1959, 7,(12),841-3, tabs.1,bibl.6.
A fuller version of Weed Abstr., 8,2152. L.K. [O.W.]

Noted

601N. CRAFTS, A.S. The formulation of herbicides. Proc.Afr.Weed Control Conf. 1958, 1960, 237-40.
A general discussion of the penetration and translocation of herbicides in plants. D.M.L.S. [O.W.]

602N. BAKER, J.B. (Agric.Exp.Sta.,Baton Rouge,La,U.S.A.) An explanation for the selective control of barnyard grass in rice with CIPC. Weeds, 1960, 8,(1),39-47, figs.6,tabs.1,bibl.7.
A fuller version of Weed Abstr., 8,1385. L.K. [O.W.]

PATENTS

603. MARANO, M.A. A spray for the destruction of nutgrass (Cyperus esculentus). Australian Patent, 1957, 206 596.
Consists of a mixture of 2,4-D + turpentine + wetter applied at 1.8 kg 2,4-D + 4.5 litres of turpentine. - From Chem.Zbl., 130,16461. - L.K.

604. GUNDESEN, B.D. Production of a herbicidal substance. Australian Patent, 1957, 211 408.
Production of polyethyleneglycol ester of phenoxyacetic acids. To Ivon Watkins Ltd. - From Chem.Zbl., 131,2325. - L.K.

605. HOLZER, L. Pyrazine derivatives. Austrian Patent, 1958, 204 049.
Synthesis. To Osterreichische Stickstoffwerke A.G. - From Chem.Abstr., 53, 18070b. - L.K.

606. GREAT BRITAIN. Substance for treating growing plants. British Patent, 1956, 761 545.
Endothal and derivatives. - From Chem. Zbl., 130,15821.- L.K.

607. GREAT BRITAIN. Production of α,α-dichloroisovaleric acid. British Patent, 1958, 805 260.
Synthesis. As defoliant and for ripening. To Dow Chem.Co. - From Chem.Zbl., 130,16144. - L.K.

608. GREAT BRITAIN. Trichloroacetic acid. British Patent, 1959, 810 461.
To Monsanto Chem.Co. - From Chem.Abstr., 53,16967i. - L.K.

609. GREAT BRITAIN. Substituted ureas. British Patent, 1959, 811 681.
An apparatus is described for the continuous production of unsymmetrically substituted ureas from the corresponding amines and $COCl_2$. To E.I. du Pont de Nemours & Co. - Chem.Abstr., 53,18872i.

610. PFEIFFER, R.K. and STANLEY, J.S. Herbicidal or plant-growth regulant compositions. British Patent, 1959, 813 931.
Improved hormone weedkillers are prepared by adding 0.5-5%, preferably 1-2%, of a propylene glycol compound, e.g. a polypropylene glycol or a mixed polyethylene glycolpolypropylene glycol, to a composition containing 2,4-D, 2,4,5-T or 2-methyl-4-chlorophenoxyacetic acid, or their salts, esters, or amides. - Chem. Abstr., 53,17413h.

611. TOORMAN, B.V.B. 2,2-Dichlorobutyric acid as herbicide. British Patent, 1959, 815 200.
To Dow Chem.Co. - From Chem.Abstr., 53, 18372a. - L.K.

612. NETHERLANDS. Herbicide. Dutch Patent, 1958, 87 658.
Substituted dimethyl ureas. To E.I. du Pont de Nemours & Co. - From Chem.Zbl., 130, 15173. - L.K.

613. FRANCE. Herbicide. French Patent, 1955, 1 085 848.
Powder of 2,4-D + MCPA (amines). To Prod. Chim.Ind.Agric. - From Chem.Zbl., 131, 1984. - L.K.

614. FRANCE. Biocide concentrate of PCP. French Patent, 1957, 1 148 240.
To N.V. de Bataafsche Petroleum Mij. - Chem. Zbl., 131,2327. - L.K.

615. BARRONS, K.C. Control of undesired plant growth. German Patent, 1957, 959 066.
Dalapon. To Dow Chem.Co. - From Chem. Abstr., 53,18372e. - L.K.

616. SCHERER, O. and STAHLER, G. Urea compounds. German Patent, 1957 1 004 164.
Synthesis. To Farwerke Hoechst A.G. - From Chem.Abstr., 16972e. - L.K.

617. KUHLE, E., WEGLER, R. and DOMAGK, G. Monoacylated maleic hydrazides. German Patent, 1957, 1 008 739.
Synthesis. To Farbenfabriken Bayer A.G. - From Chem.Abstr., 53,18071b. - L.K.

618. TURSICH, J.A. Propynyl phenylcarbamate herbicides and fungicides. German Patent,1957, 1 017 407.
To Columbia Southern Chem.Corp. - From Chem. Abstr., 53,17413i. - L.K.

619. HUNI, A. and STAEHELIN, A. 1,3,5-Triazines. German Patent, 1957, 1 018 424.
To CIBA Ltd. - From Chem.Abstr., 53,17159 i. - L.K.

620. ITALY. Production of 2,4-D. Italian Patent, 1952, 497 934.
To U.S. Rubber Co. - Chem.Zbl., 131,2327.

621. GYSIN, H. and KNÜSLI, E. Unkrautbekämpfungsmittel. [Weed killer.] Swiss Patent, 1959, 335 569.
Triazines. To J.R. Geigy. - From Chem.Zbl., 130,16771. - L.K.

622. KRUCKENBERG, W. and EUE, L. Killing weeds. U.S. Patent, 1959, 2 875 031.
2,5-Dimercaptothiadiazoles. To Farbenfabriken Bayer A.G. - From Chem.Abstr., 53, 19287e. - L.K.

623. ROBERTSON, D.A. and MAYNARD, B.C. Propylphenylethylamines and their halogen acid salts. U.S. Patent, 1959, 2 884 455.
Synthesis. To Dow Chem.Co. - From Chem. Abstr., 53, 17055a. - L.K.

624. KAUER, C. and SLAGH, R.H. O-Biphenyl-yl O,O-dialkyl phosphorothioates. U.S. Patent, 1959, 2 885 429.
Synthesis. To Dow Chem.Co. - From Chem. Abstr., 53,17061c.

625. LOUTHAN, R.P. and KRUSE, C.W. Organic sulphur halides and derivatives. U.S. Patent, 2 886 593, 1959.
Synthesis. To Phillips Petroleum Co. - From Chem.Abstr., 53,18066e. - L.K.

626. SCHWERDLE, A. Alkali metal methanearsonates. U.S. Patent, 1959, 2 889 347.
Synthesis. From Chem.Abstr., 53,18864i. - L.K.

627. BARRONS, K.C. Plant-growth suppression with 2,2,3-trichloropropionitrile. U.S. Patent, 1959, 2 892 696.
To Dow Chem.Co. - From Chem.Abstr., 53, 18371h. - L.K.

628. SMITH, A.E. and FELDMAN, A.W. N-(1-naphthyl)chlorophthalamic acid herbicides. U.S. Patent, 1959, 2 893 855.
Synthesis. To U.S. Rubber Co. - From Chem.Abstr., 53,18371f. - L.K.

629. HAMM, P.C. Defoliating compositions. U.S. Patent, 1959 2 893 856.
Various thionocarbamates are effective in defoliating plants, especially cotton, prior to mechanical harvesting. The effective compounds have the structure ROC(:S)NHR', in which R is an alkyl group containing <4 carbon atoms and R' is an aryl radical. The defoliants are effectively applied as an oil-base spray in a 0.1-10% concentration preferred. Et p-anisyl-, Et p-phenetyl-, Et p-tolyl-, Me phenyl- and Et phenylthionocarbamate, when dissolved in an organic liquid, emulsified in H_2O, and added as a 1% spray gave 100% defoliation of beans. - Chem.Abstr., 53,18372b.

630. de PREE, D.O. Aminolead compounds as herbicides. U.S. Patent, 1959, 2 893 857.
Triethyl (sec-butylamino)lead (I) was prepared by dissolving triethyllead chloride in 10 times its weight of C_6H_6, mixing with a stoichiometric excess of sodium sec-butylamine, refluxing for 30 minutes, and filtering off the NaCl precipitate, leaving a pale-yellow liquid which was recovered by evaporation on a steam bath. The liquid did not solidify at -50° and was fairly pure (I). When (I) was added to gasoline, a mixture containing 4.49 g Pb/gal increased the octane number by 6. Dissolved in fuel oil, (I) was herbicidally active in a concentration of 0.1% by weight. When applied to plants, (I) slowly decomposed to triethyllead hydroxide, which was not washed away readily. The herbicidal effect was due to the high Pb content of the hydroxide. Si, Sn and As compounds can be prepared similarly. - Chem.Abstr., 53,18372c.

MISCELLANEOUS

See also 572.

631. BATES. G.R. (Fed.Dep.Agric., Salisbury,S.Rhodesia). Some aspects of noxious weeds legislation. Proc.Afr. Weed Control Conf.1958, 1960, 156-8.
The author discusses difficulties of

enforcement owing to ambiguities of definition, etc. in the law, and expressed his personal support for noxious weed legislation, and the need for a review of such legislation in the Rhodesian Federation.

Following his paper, problems concerning the control of water hyacinth [Eichhornia crassipes] were discussed. - D.M.L.S. [O.W.]

632. GREAT BRITAIN. Crop Protection Products Approval Scheme. Approved List 1959-60. Min.Agric.Fish Fd, 1959, pp.64, tabs.3.

This revised list to replace that of 1958 contains, as before, a list of approved pesticides, names and addresses of manufacturers and 3 tables of crop and weed susceptibility (based on those in the Weed Control Handbook published by the British Weed Control Council). - D.M.L.S. [O.W.]

633. UNITED STATES. Certified seed news. Weed list lengthened. Crops & Soils, 1960, 12,(5),30.

The Nebraska Legislature has added nodding thistle [Carduus nutans] and Johnson grass [Sorghum halepense] to the primary noxious weed list. - D.M.L.S. [O.W.]

ERRATA

Weed Abstracts, 9,157.
Title and reference should read: Chemische Pflanzenbekämpfungsmittel (Herbizide) und Fische! Dtsch.FischZtg, 1959, (8),241-4.

Weed Abstracts, 9,419.
Line 12 - for ml read µl.
Line 13 - for µl read µc.
Line 28 - for Varsol read Vatsol.

Weed Abstracts, 9,420.
Line 10 - for "concentration" read "inhibition".

List of Common Names and Chemical Abbreviations

Revised April, 1960.

The following list, based on that adopted by the Weed Society of America has been approved by the British Weed Control Council, except those marked □.
An asterisk (*) signifies common names approved by the B.S.I.
A plus sign (+) signifies approval by the Weed Society of America.

amiben □+	3-amino-2,5-dichlorobenzoic acid
amitrol +□	3-amino-1,2,4-triazole.
AMS □+	ammonium sulphamate
atrazine □+	2-chloro-4-isopropylamino-6-ethylamino-1,3,5-triazine
barbane □+	4-chloro-2-butynyl-N-(3-chlorophenyl)carbamate
CDAA +	2-chloro-N,N-diallylacetamide
CDEA +	2-chloro-N,N-diethylacetamide
CDEC +	2-chloroallyldiethyldithiocarbamate
chlorpropham *	isopropyl-N-(3-chlorophenyl)carbamate
4-CPA +	4-chlorophenoxyacetic acid
4-CPB	4-(4-chlorophenoxy)butyric acid
2,4-D +*	2,4-dichlorophenoxyacetic acid
3,4-DA +	3,4-dichlorophenoxyacetic acid
dalapon +*	2,2-dichloropropionic acid
2,4-DB *	4-(2,4-dichlorophenoxy)butyric acid
DCU +□	dichloralurea
2,4-DEB +	2,4-dichlorophenoxyethyl benzoate
2,4-DES +*	sodium 2,4-dichlorophenoxyethyl sulphate
dichlone +*	2,3-dichloro-1,4-naphthaquinone
dinosam *	2-s-amyl-4,6-dinitrophenol
dinoseb *	2-s-butyl-4,6-dinitrophenol
diquat +	1,1'-ethylene-2,2'-dipyridylium dibromide
diuron +	N-(3,4-dichlorophenyl)-N',N'-dimethylurea
DMTT +□	3,5-dimethyltetrahydro-1,3,5,2H-thiadiazine-2-thione
DNOC *	2-methyl-4,6-dinitrophenol or 3,5-dinitro-o-cresol
2,4-DP	2-(2,4-dichlorophenoxy)propionic acid
endothal +	3,6-endoxohexahydrophthalic acid
EPTC +□	ethyl-N,N-dipropylthiolcarbamate
erbon +	2-(2,4,5-trichlorophenoxy)ethyl-2,2-dichloropropionate
fenac □ +	2,3,6-trichlorophenylacetic acid
fenuron +	N-(phenyl)-N',N'-dimethylurea
ipazine □+	2-chloro-4-diethylamino-6-isopropylamino-1,3,5-triazine
MCPA +*	4-chloro-2-methylphenoxyacetic acid
MCPB *	4-(4-chloro-2-methylphenoxy)butyric acid
MCPES +	sodium 4-chloro-2-methylphenoxyethyl sulphate
mecoprop *	dl-2-(4-chloro-2-methylphenoxy)propionic acid
MH +□	maleic hydrazide
monuron +*	N-(4-chlorophenyl)-N',N'-dimethylurea
neburon +	N-(3,4-dichlorophenyl)-N'-butyl-N'-methylurea
NPA +	N-1-naphthylphthalamic acid
PCP +	pentachlorophenol
PMA +	phenyl mercuric acetate
propazine □+	2-chloro-4,6-bis(isopropylamino)-1,3,5-triazine
propham *	isopropyl-N-phenylcarbamate
simazine+	2-chloro-4,6-bis(ethylamino)-1,3,5-triazine
SMDC +□	sodium methyl dithiocarbamate
2,4,5-T +*	2,4,5-trichlorophenoxyacetic acid
2,4,5-TB	4-(2,4,5-trichlorophenoxy)butyric acid
2,3,6-TBA +	2,3,6-trichlorobenzoic acid
TCA +	trichloroacetic acid
2,4,5-TES +	sodium 2,4,5-trichlorophenoxyethyl sulphate
2,4,5-TP	2-(2,4,5-trichlorophenoxy)propionic acid
trietazine □+	2-chloro-4-diethylamino-6-ethylamino-1,3,5-triazine
3Y9 □	tris-(2,4-dichlorophenoxyethyl)phosphite

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